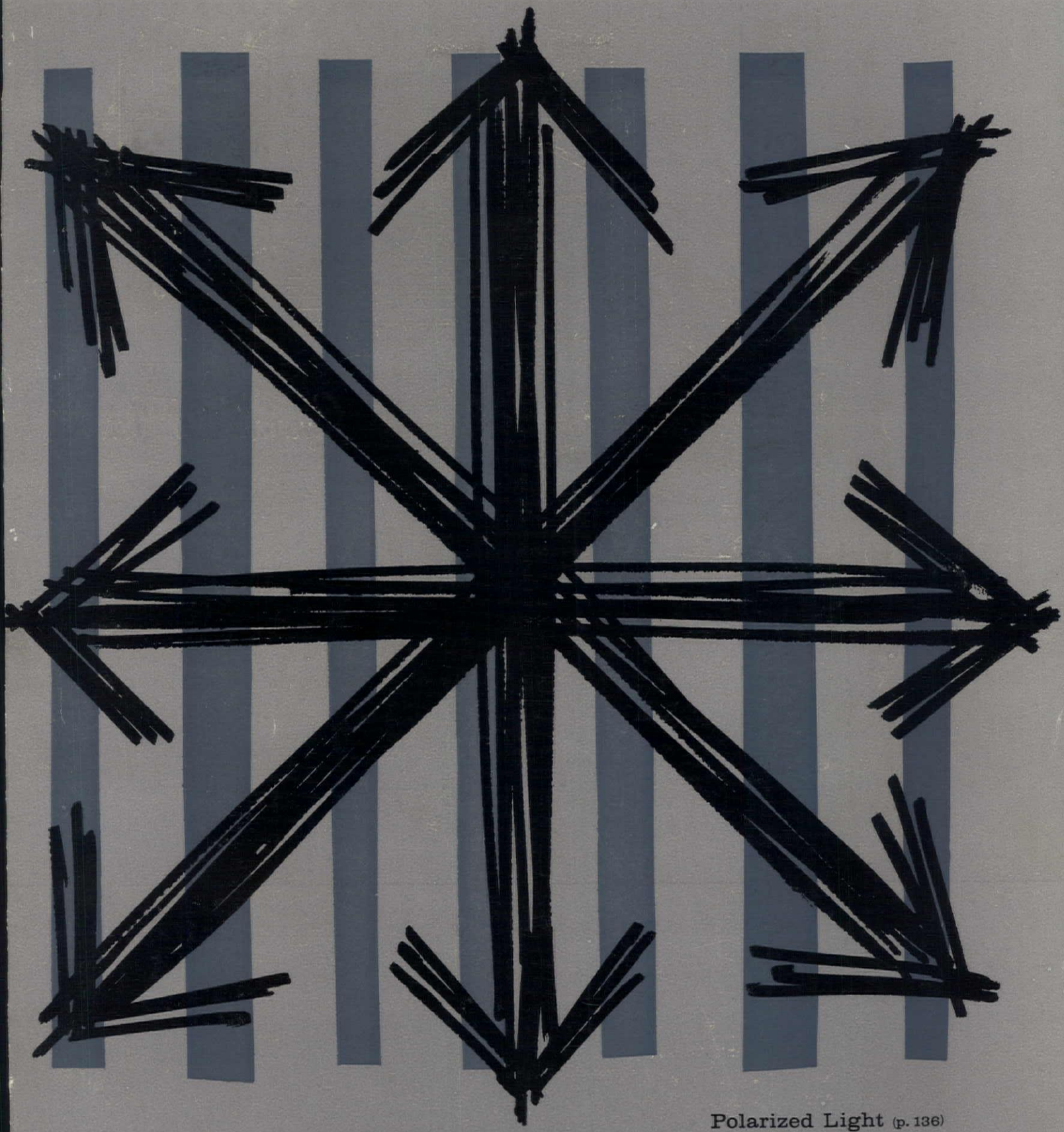
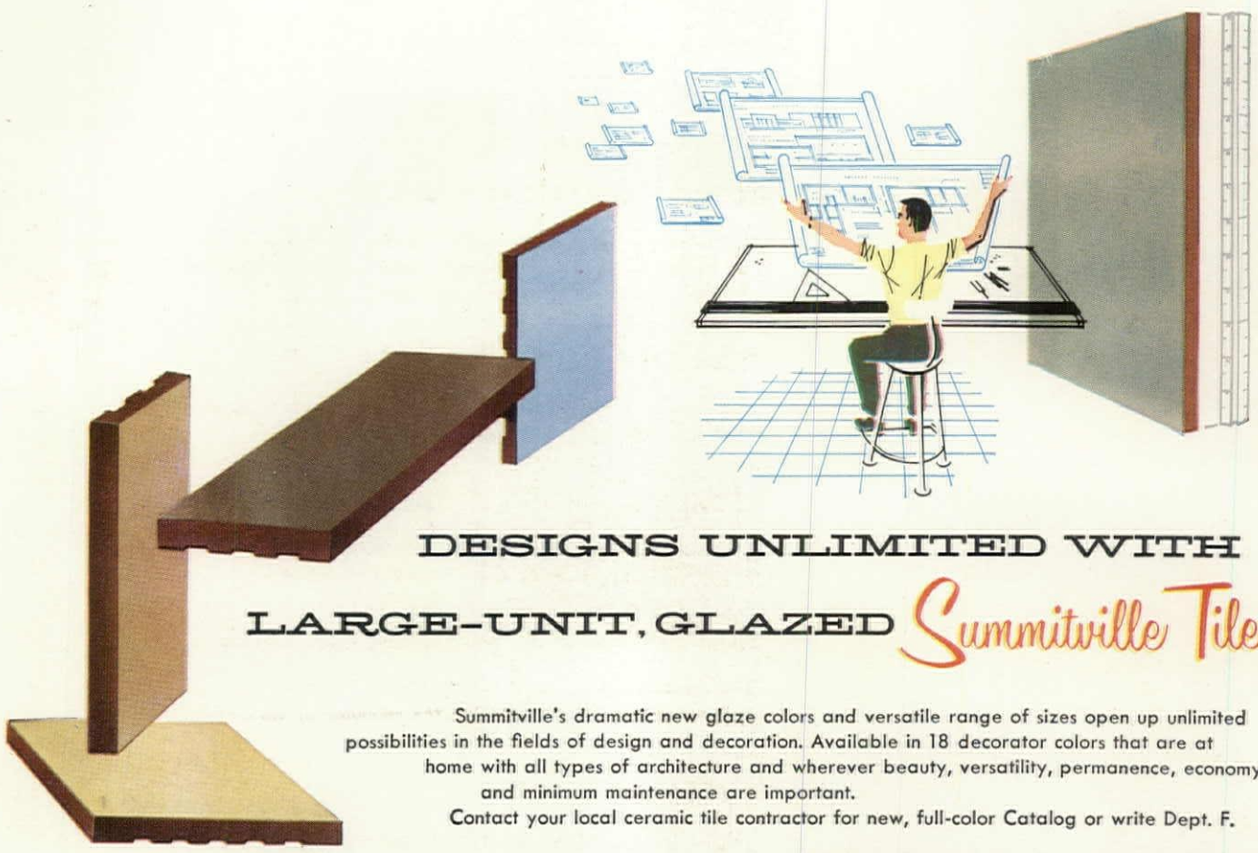
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Polarized Light (p. 136)

FORUM



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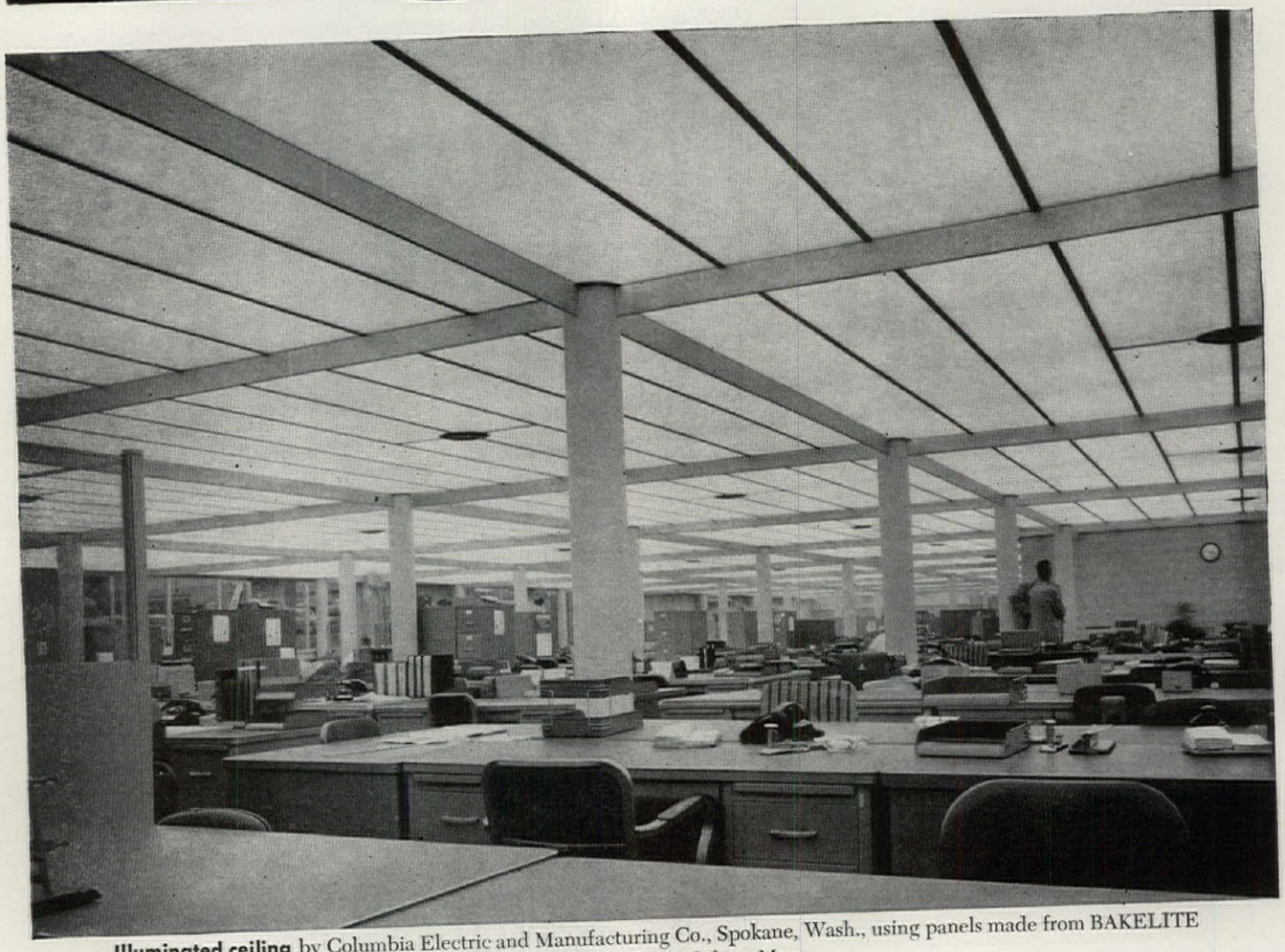
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A new illuminating technique to control glare.

LIGHT...



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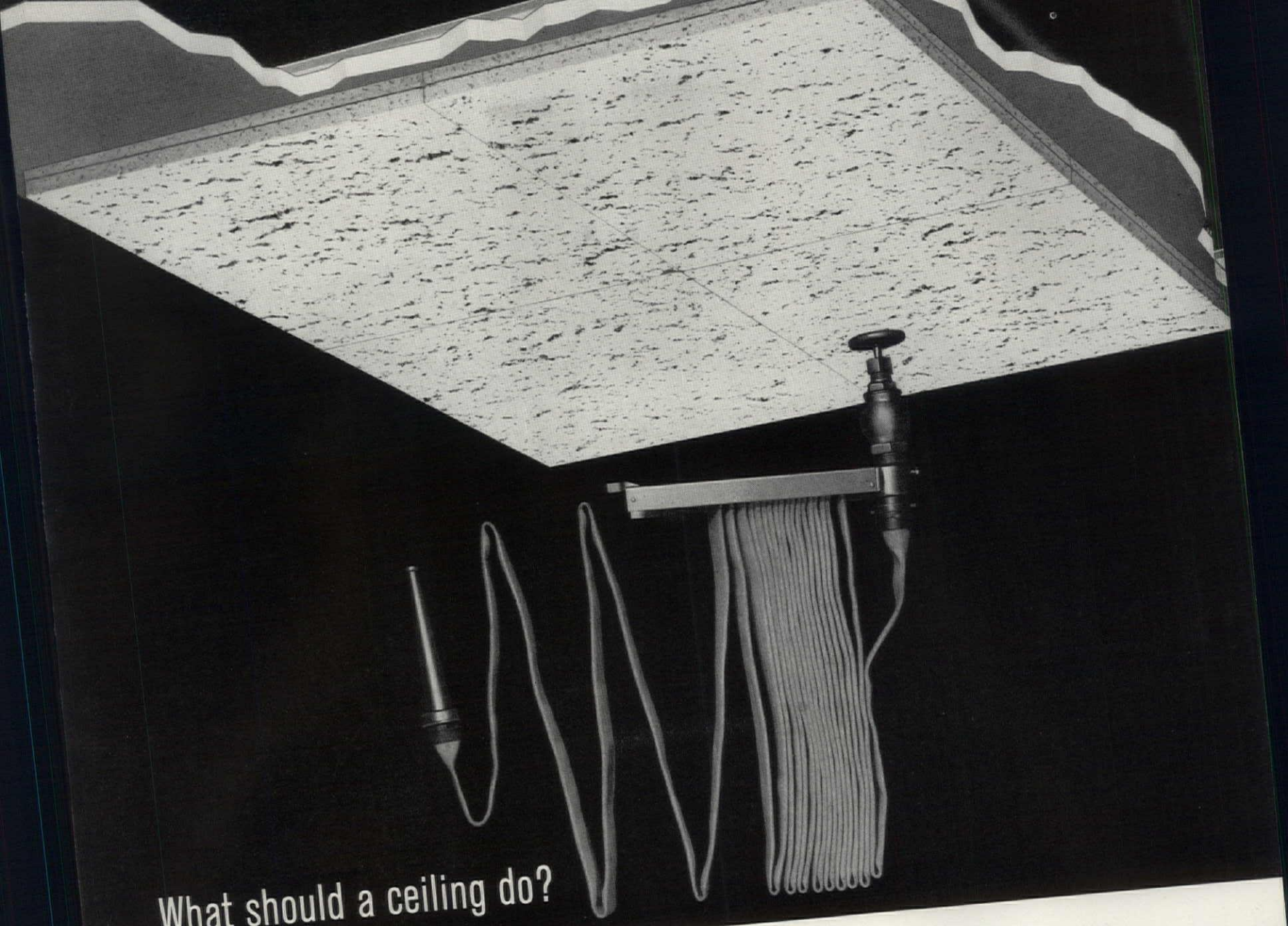
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Housing bill killed; urban renewal, college loans, public housing, all face curtailment.

WALTER BENNETT



CONGRESSMAN SMITH
Strategic delaying action

Urban renewal, public housing, college housing, and probably some of the Federal Housing Administration programs will have to tighten their belts for the coming year. For the first time since 1948, Congress failed to approve an over-all housing act before it adjourned last month.

After a sharp partisan battle and much parliamentary in-fighting, Republicans in the House defeated an exceptionally liberal Democratic bill that Housing and Home Finance Administrator Albert M. Cole had publicly ridiculed as "a 1¾ billion dollar Christmas tree loaded for the benefit of everyone in sight except the taxpayer." And, in an all-or-nothing gamble, Democratic Speaker Sam Rayburn had warned that he would not allow any modified, hastily drawn Republican substitute to be brought up if the Democratic bill failed. (Unless both parties later agreed to a last-minute compromise, housing legislation for this year was dead.)

The showdown political jockeying began on July 24, when the House Banking and Currency Committee favorably reported a companion measure to the liberal $2.5 million housing and renewal bill adopted by the Senate on July 11 (FORUM, August 1958). Elaborating the next day on his "Christmas tree" blast, Cole ripped the House bill on two specific points:

- "It would authorize three times as much for colleges and related needs as we have been spending—$650 million in place of $200 million the Administration recommends. It would pour Treasury money into colleges not just for housing, but for nearly every conceivable purpose, including classrooms, laboratories, and what have you.
- "It would double the rate of federal spending for urban renewal—providing $500 million a year instead of the present and proposed $250 million program."

Cole declared that it would be hard for him to recommend that the President approve either the Senate or House bills, if adopted. In fact, he suggested, it was possible that the Administration could even get along without any housing bill this year. He noted that FHA's principal needs had already been met in the Emergency Housing Act signed by President Eisenhower in April — before the Administration's switch from an antirecession back to an anti-inflation program. Urban renewal could be kept going by drawing on a $100 million reserve fund at the President's disposal and a $50 million carry-over from current authorizations, said Cole, and public housing authorizations under existing legislation still exceed applications.

A week later the full Banking and Currency Committee approved the House bill with a number of cutbacks —the college program trimmed from $650 to $425 million—but it was still considered inflationary in Administration quarters. Ironically, the inflation-battling Republicans received important aid at this point from economy-bloc Southern Democrats led by powerful Representative Howard W. Smith (D, Va.), chairman of the House Rules Committee. An avowed foe of federal loan programs, Smith bottled up the bill in the Rules Committee—a strategic delaying action.

As a result, when it was brought up for floor action on August 18 under a special suspension of the rules, this meant that total debate was limited to 40 minutes, no amendments could be made, and a two-thirds vote was necessary for adoption.

On the final vote, 251 to 134, the bill had a majority—but it lacked the required two-thirds margin by six votes. The 185 Democrats voting for the bill were joined by 66 Republicans, but the measure actually was defeated by the minority group of only 111 Republicans, aided by 23 economy-bloc Democrats, including Smith.

Veto snarls rent-purchase; other bills aid building

In the session-long cross fire between the Republican Administration and the Democratic-controlled Congress, housing was not the only building industry legislation casualty. Several other industry measures were bullet-creased,

or crippled to a greater or lesser degree. Examples:

▸ The federal lease-purchase (installment plan) construction program of the General Services Administration was all snarled up. In the $6.6 billion independent offices appropriation bill, Congress rescinded the entire lease-purchase operation except for 29 specific projects already advanced to bid advertising stages. In the same bill Congress appropriated $196 million for GSA to allow it to proceed with regular contract construction of other buildings previously approved for lease-purchase erection. When President Eisenhower vetoed the over-all bill, because of one section he disapproved, the status of the whole program became uncertain. Theoretically, lease-purchase was reprieved, and GSA would not receive the $196 million building appropriation. As FORUM went to press, Congress had not yet overridden the veto, nor passed a substitute bill minus the section the President opposed, and GSA building officials were patiently thumb-twiddling.

▸ A regular public works appropriation bill for $1.1 billion was adopted by both houses, and was due to be sent to the President as soon as Senate and House conferees had ironed out minor differences. On the other hand, a special community facilities public works bill the Senate adopted in April as a $1 billion full-employment, antirecession measure was killed last month in the House (where it had grown to $2 billion) by Republicans who believe the economic trend is now reassuringly upward. This would have provided low-interest, long-term federal loans to local communities to build all sorts of public works.

▸ As adjournment neared, the House adopted a $275 million loan and grant bill to improve conditions in areas of chronic unemployment or underemployment. This sent the measure to conference with the Senate, which earlier adopted a $379 million bill for this purpose. The House rejected a Republican proposal to substitute a $50 million program for loans only, as once recommended by President Eisenhower. At press time the outcome of the Senate-House conference and final fate of this legislation in Congress or at the White House was still uncertain.

▸ On August 14 the Senate adopted a $1.7 billion military construction bill, which was $501 million more than a House bill provided, but $10 million less than the Administration had requested. The ultimate outcome on this bill was also uncertain at press time.

▸ Stating that he did so "reluctantly," President Eisenhower signed a bill to continue a program that provides about $200 million a year in federal aid for the construction and operation of schools in communities that suffer an impact from large numbers of families of federal workers who must work nearby. Although he hoped this program could be "phased out," the President requested an appropriation of $210 million for it for this year. Funds for this were included in a $3.9 billion supplemental appropriations bill that passed the Senate August 15 and also included funds for a $386 million Atomic Energy Commission program for building reactors and research facilities. At press time this still had to be reconciled with House legislation before being sent to the White House.

WALTER DARAN



Scheick will leave BRAB, direct TECO research

William Hunt Scheick, 53, long-time executive director of the Building Research Institute and the Building Research Advisory Board, resigned that position last month to become vice president of research and development for Timber Engineering Company in Washington, D. C. Scheick, an architect and former professor of architecture at the University of Illinois, has held top posts in building research for 14 years, starting in 1944 as director of the Small Homes Council and in 1949 as the executive director of the Building Research Advisory Board of the National Academy of Sciences. As vice president of TECO, an affiliate of the National Lumber Manufacturers Association, Scheick will coordinate research programs for the lumber and wood-using industries.

Investment trusts rejected in last minute upset

Although they reached the legislative home stretch, two proposed changes in federal tax laws that would have greatly aided real estate and building interests failed to clear the final hurdles just before Congress adjourned.

The most significant of the two proposals would have permitted the formation of real estate investment trusts that would be exempt from federal corporation taxes under certain conditions. One bill to this effect cleared the House Ways and Means Committee, while another was adopted by the Senate as part of an omnibus tax revision bill. To the surprise of almost all observers, however, this provision was scrapped by the conference committee appointed to adjust the differences between House and Senate versions of the master tax revision bill.

Under the proposed legislation real estate trusts would have been required to distribute at least 90 per cent of their income to their shareholders each year—the same rule that applies to securities trusts that already enjoy "conduit" tax exemption privileges. In addition, trust properties would have to be operated by separate organizations that would be subject to all regular taxation. With such clearly defined tax exemption privileges, real estate trusts were expected to stimulate growth in security-type public investment in real estate and building ventures. Real estate syndicates are already attracting large sums of new money into these fields (page 118), despite their uncertain tax status. For greater tax safety, some syndicate organizers had planned to convert their syndicate activities into real estate trust operations in the event this measure had been enacted.

The second important tax change that narrowly missed enactment last month would have assisted architects, engineers, realtors, and other professional or self-employed workers, by allowing them to defer taxes on payments into personal retirement trust accounts up to $2,500 a year. This won House approval, but was rejected in the final hours of floor debate on tax revisions in the Senate.

On the positive side, several new tax provisions were enacted. These will:

▸ Permit the reinvestment of real estate condemnation awards in any

type of real estate without the payment of capital gains taxes on the profit portion of such awards. Previously such awards had to be reinvested in the *same type* of property to avoid such taxation.

▸ Extend the present 5 per cent manufacturers' tax on electric garbage disposal machines to gas, and oil units and to electric, gas and oil incinerators.

▸ Specifically allow a lessee to take full depreciation on an improvement he made on a lessor's property during the first period of a long-term renewable lease in certain situations. Mainly this will now be allowed provided the initial lease period (or remaining portion of it) is 60 per cent or more of the useful life of the improvement. A House provision would have required a slower depreciation rate, taking into account the renewal option periods in virtually every case, but in the bill that was finally enacted the more liberal Senate provisions were adopted.

Senate vote dooms effort to save Capitol East Front

As it rushed to adjourn, the Senate last month voted down a bill that would have preserved and restored the East Front of the U.S. Capitol in its present position instead of rebuilding it 32½ feet forward as directed in legislation adopted in 1955 without a public hearing.

During an hour's debate before the crucial 47-32 vote, Minority Leader William F. Knowland (R, Calif.), a member of the Joint Commission for Extension of the Capitol, disclosed that initial contracts for the East Front extension and other Capitol improvements, to cost an eventual total of at least $75 million, were already drawn, but he had withheld his signature from them pending a vote on the preservation bill. A powerful political combination, Knowland and Majority Leader Lyndon B. Johnson (D, Tex.), both spoke in favor of the extension project, which is now expected to be started almost immediately.

The unsuccessful bipartisan drive to have the East Front repaired where it stands and make needed changes elsewhere was led by Senators H. Alexander Smith (R, N. J.), Joseph S. Clark (D, Penn.), Clifford P. Case (R, N. J.), and Hubert Humphrey (D, Minn.). The Senate Public Works Committee voted unanimously for preservation after a subcommittee public hearing on the Smith-Clark bill last spring.

The Senate vote last month was in opposition to the expressed desires of all professional bodies concerned—the American Institute of Architects, which in July reaffirmed its traditional opposition by a thumping vote in its annual convention, the College Art Association, the Society of Architectural Historians, the National Trust for Historic Preservation, the leading independent architectural critics, and the great majority of newspapers that had run editorials. But all of these lost against the clever campaign waged within the gates by Architect of the Capitol J. George Stewart.

Distressed rental projects cost FHA $34 million

The Federal Housing Administration on March 31 had lost $34.2 million in disposing of 289 of the 613 rental housing projects it had acquired as a result of defaults on FHA-insured mortgages.

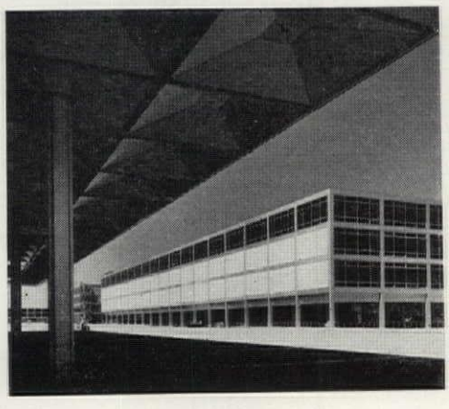
FHA's total expenses in acquiring, maintaining and repairing the 613 defaulted rental properties (mainly "608" projects)—were $313.5 million. On the 289 projects (containing 20,412 dwelling units) that it had liquidated, its expenses were $158.3 million and the amount it recovered, $124.1 million. Average loss: $1,600 per dwelling unit. The agency's outlays on the 324 projects

continued on page 9



PHOTOS: H. LA PLANT





AIR ACADEMY NEAR COMPLETION

For more than a year construction of the Air Force Academy at Colorado Spings, Colorado, has proceeded at an impressive clip averaging $5.7 million a month. At one time the work force exceeded 5,000. On schedule on the first of this month, 1,100 cadets and 160 faculty members moved into the nearly completed facilities, designed by Skidmore, Owings & Merrill.

One of the major buildings ready for the cadets was the quarter-mile long, six-story, glass-and-aluminum cadet quarters structure (above) containing 1,320 two-man rooms.

Another was the immense, 3,000-seat cadet dining hall, which rests on a high base of Minnesota granite (left top). The huge steel-grid roof frame for this building is 308 feet square (a little over two acres) and is supported on only 16 exterior columns, providing an inside clear span 266 feet square. This unusual roof, weighing 1,150 tons, was fabricated on the ground and then raised by hydraulic jacks (FORUM, March 1958).

At bottom left: the academic complex wall as seen from the dining hall deck.


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it still held (containing 27,500 dwelling units) totaled $155.2 million.

Last month the Senate Banking Committee tacitly approved FHA's policy of taking its losses, sometimes recovering as little as 10 cents on the dollar. The committee did agree, however, with a complaint of Senator Olin D. Johnston (D, S.C.) that FHA sales ought to be advertised more often in local publications as well as large nationally circulated newspapers. Johnston had protested the lack of any local advertising in connection with pending sales of a 100-unit Gaffney, S. C. project for $43,000 (compared with the original FHA mortgage of $426,000), another 50-unit Gaffney project for $51,000 (original mortgage $239,000), and a 60-unit Greenwood, S. C. project for $20,000 (original mortgage $367,600).

This month FHA will open all-cash bids for the sale of one of its most unhappy projects: Glenwood Village, in South Norfolk, Virginia. This project, built by the Levitts for Norfolk war workers, consists of 1,600 four-room apartments in 53 long, austere one-story buildings, a shopping center and two sewage treatment plants. But as FHA has candidly advertised, almost 1,200 of the units are vacant and "have been severely vandalized." In addition, South Norfolk has adopted ordinances that will require any purchaser to demolish up to 600 units and perform other extensive rehabilitation, replacements, street repairs, and landscaping.

In many instances, of course, FHA has achieved practically complete recovery of all its expenses. To offset future losses, the balances in its reserve accounts from rental project insurance premiums on March 31 totaled $150 million.

New York: a showcase of city housing problems

Four different unrelated reports gave a vivid picture last month of the incongruous, paradoxical, and often confusing aspects of New York City's crazy mixed-up housing problems. Many of them were the same housing problems that also plague other big metropolitan core cities.

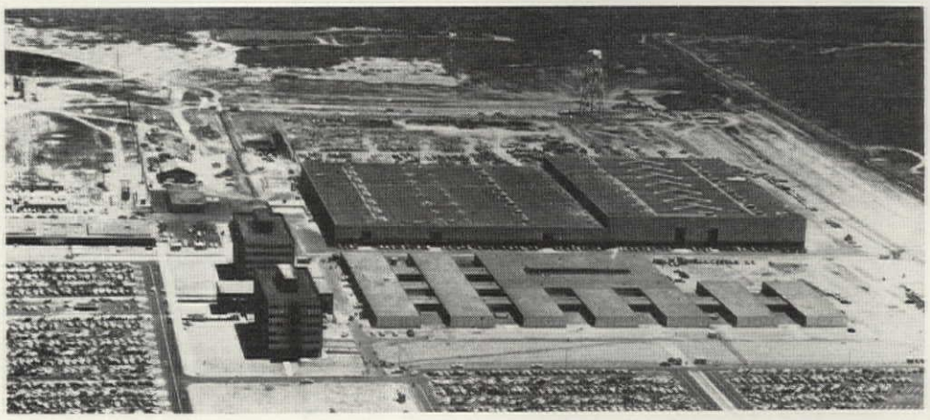
1. *Public housing's $10,000 tenants.*

Under a new maximum income schedule, some New York families with incomes of more than $10,000 a year will now be allowed to occupy public housing apartments. In federally aided projects income limits for a family of seven or more will be raised from $4,999 to $6,000, and in state aided projects from $6,499 to $7,800. In city-financed projects, however, a family of five will be allowed to move in if its income is not over $9,036 (previously $7,490) and will be permitted to remain as long as its income does not exceed $9,936. In computing "income," the city excludes such items as expenses for uniforms, and Social Security and pension payments, and a family's gross income could therefore easily exceed $10,000. Explaining a 30 to 50 per cent increase in income limits, depending on the type of project, Housing Authority Chairman William Reid said they were designed to keep up with "changing economic conditions" and to enable the authority to retain "families who can be counted upon to exert leadership and set examples of social responsibility to others."

2. *Public housing's problem families.*

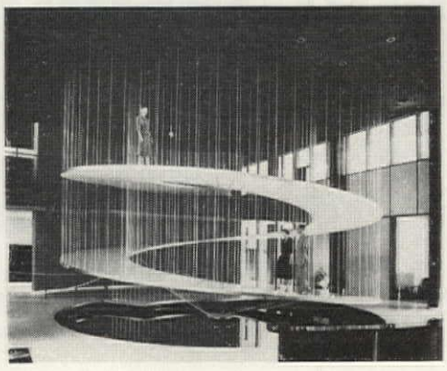
For the lower, less-responsible end of the tenant spectrum, Reid announced another innovation—"a pioneering effort that I am sure will be watched with interest all over the country." This was the creation of a new "social consultation unit" that will seek solutions to the "problem family" difficulties that beset the New York Housing Authority (and many others), and also will deal with other social work problems such as teen-age groups and care for the aged sick. "The new unit will not become a casework agency," Reid declared. "It will try, however, to help families who are considered un-

continued on page 11



FORTY-MILLION-DOLLAR GUIDED MISSILE PLANT

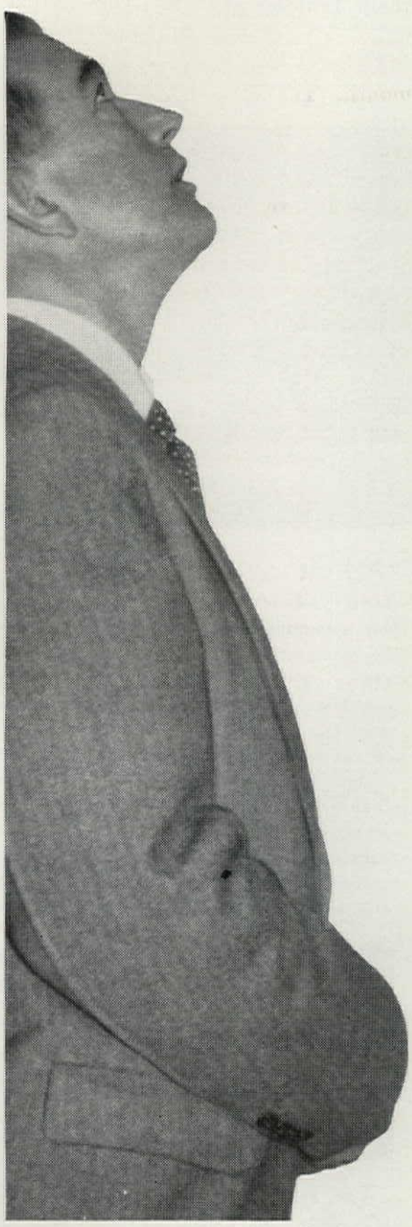
"Space vehicles" and the giant Atlas intercontinental missile are both produced in the immense new Convair-Astronautics plant and laboratory completed this summer just north of San Diego. Designed by Pereira & Luckman and erected by the McNeil Construction Co., of Los Angeles, these facilities have a total floor area of 1,200,000 square feet in six major and 14 smaller buildings, plus paved parking for more than 4,000 cars. The aerial view shows two six-story administration and engineering office buildings (left center above), the 292,000 square-foot engineering laboratory (center foreground), and the 579,000 square foot manufacturing building (background). In the lobby of the glass-walled, two-story reception center (between the administration and engineering offices), a sweeping spiral ramp is suspended over a reflecting pool on slender stainless steel rods (left, below). Reminiscent of the early Buck Rogers concept of other-world architecture, this long complex ramp, which does the work of a short, simple flight of stairs, is in sharp contrast with the business end of the plant where huge Atlas missiles are made (below).





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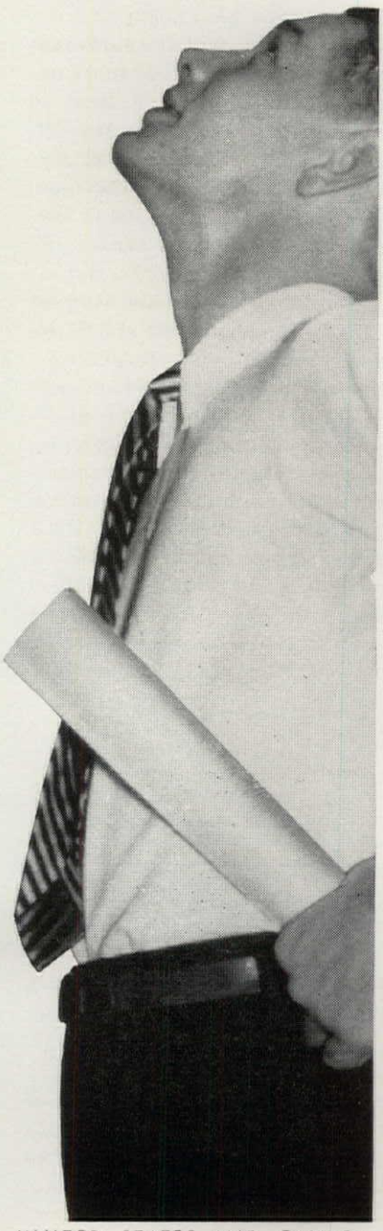
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desirable as tenants because of their social problems to secure aid from outside casework agencies." It will be especially valuable, he said, in dealing with tenants whose behavior has raised the possibility of eviction for the protection of other tenants. As a special consultant to establish the new unit, Reid appointed famous Social Worker Helen Hall, director of New York's Henry Street Settlement since 1933 and president of the National Federation of Settlements from 1934 to 1940.

3. *The slum's steady growth.*

Some dismal indications of accelerated New York slum growth were pointed out by the City Planning Commission. In an analysis of New York metropolitan area housing data for 1950 and 1956, compiled by the Census Bureau, the commission found significant evidence of deteriorating conditions. Among 3,706,000 units surveyed in both 1950 and 1956, dilapidated units or those lacking full facilities increased from 9.8 to 11.4 per cent. This trend to slum conditions was more pronounced in rental than in ownership housing, and it was concentrated in the city because the city proper holds over 75 per cent of the area's rental stock. While the Census Bureau data showed that many of 1950's substandard units were rehabilitated, an even larger number of good dwellings became dilapidated or otherwise defective.

4. *City subsidy for slum housing.*

"New York City is spending more than $45 million a year that is in effect a subsidy of slums." With that lead, the *Times* printed a comprehensive account of the results of the Welfare Department's policy to adjust each welfare family's relief payment to cover whatever rent the family must pay in whatever accommodation it can find. Landlords who operate slum rooming houses that are exempt from rent control have developed a lucrative business in catering to relief clients, the *Times* reported. "Buildings that are among the most miserable in the city are tenanted almost exclusively by welfare clients. The Welfare Department is helpless to control the steadily rising rent bill it is forced to pay, or to compel landlords to provide decent housing for the taxpayers' dollars. . . . The result is a vicious economic circle that forces the city to pay more and more for housing that gets worse and worse—with no end in sight." Some figures helped tell the story. Since 1950 the city has lost 72,500 living units, mainly lower-income housing, which were demolished to make way for public projects. The situation also has been aggravated by the subdivision of another 22,072 rent-controlled units into smaller noncontrolled units. The staggering increase in rooming-house accommodations in this period: 64,000.

Only a study in depth could develop meaningful correlations among these four separate-yet-related reports. With apparently little insight into the total urban housing problem, the *World-Telegram & Sun* frankly confessed its confusion about some aspects of New York's obviously aimless and haphazard housing policies. In an editorial on the prospect of $10,000-a-year public housing tenants, it observed: "Even with due allowance for inflation and the scarcity of rental housing at reasonable prices, we confess to some confusion. It seems as though the city is providing low-rent housing for middle-income groups instead of for low-income groups, while the federal-city Title I program is providing housing for upper-bracket instead of middle-income tenants. Isn't the local housing picture slightly out of whack, or does it only seem that way?" (In recent months this newspaper has been caustically critical of a Title I "middle-income" housing development at Washington Square that is renting penthouses for $4,200 to $9,000 a year, and is offering four-room apartments at $233 to $293 a month.)

Court O.K. paves way for Astor Plaza restart

New York's large Astor Plaza office building next door to Lever House and Seagram's was back on the track last month. The First National City Bank of New York had taken over the project from Astor Plaza, Inc. (primarily Vincent Astor), which had halted work last fall after excavation was well along.

To avoid any criticism for self-dealing, the bank had delayed resumption of work pending court approval of a long-term lease and purchase option on the land. This was because the property's owner is the William Waldorf Astor estate, the English branch of the Astor family, and it is represented by the City Bank Farmers Trust Company, an affiliate of First National City Bank. In July the court approved the transaction.

Vincent Astor originally announced a 46-story, $75 million building designed by Carson & Lundin and Kahn & Jacobs, associated architects (FORUM, October 1956). Instead, the same architects are now designing a building of approximately 41 stories for First National City Bank, to be erected by the George A. Fuller Company.

F. H. McGraw joins ranks of big redevelopers

Facing a sharp decline in industrial construction, F. H. McGraw & Co., one of the nation's biggest engineering and construction firms, decided last winter to look for new business in urban renewal. McGraw's backlog of industrial construction contracts had declined from $231 million to $115 million dur-

continued on page 13

LARGEST SINGLE-OCCUPANCY TOWER

Ground was broken last month for this $58 million, 42-story headquarters for the Equitable Life Assurance Society, designed by Skidmore, Owings & Merrill. Adjoining New York's Rockefeller Center, it will house 10,000 employees and will be the world's largest single-occupancy private office building (1,700,000 gross square feet). The sheer 546 foot tower will rise from a landscaped plaza 16 feet wide in front and 24 feet on each side. For additional spaciousness the ground floor's glass walls will be recessed another 15 feet. The 14-story rear section of the building will have a 10 foot plaza on each side. A 40 x 50 foot two-story mockup on the site is being used to study various aluminum, stainless steel, and glass exterior treatments, as well as interior materials and equipment that may be used for the building.





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ing 1957, at the end of June was down to about $50 million. By last month, however, the trend was reversed and McGraw was settled firmly in the ranks of the nation's principal redevelopers.

Hartford, Connecticut has signed on McGraw, of New York and Hartford, to build a $50 million, 15-acre slum clearance and entirely commercial redevelopment in that city. And a month ago New Britain, Connecticut contracted to have McGraw handle a 57-acre, $20 million residential and commercial redevelopment program. The Hartford project, which McGraw won over competition from Webb & Knapp and Hegeman-Harris, of New York, will consist of four 16-story office buildings, a 400-room hotel, a bus terminal, stores, and parking facilities for 4,500 cars. The project in downtown New Britain will consist of apartment and office buildings, a shopping center, a municipal building, a playground, and a parking area.

Steels up $4 to $5 a ton; lumber prices rise too

Good news in steel was tempered with bad last month.

On the encouraging side, the American Institute of Steel Construction reported that fabricated structural steel orders placed in June rose to 286,798 tons—the highest volume in 13 months. This was an increase of 62,000 tons over May orders, and 16 per cent greater than orders during June 1957. Construction shape orders for the first six months of 1958 totaled 1,263,041 tons, or 34 per cent below orders for the first half of 1957. Shipments, however, totaled 1,916,910 tons, only 8 per cent below comparable 1957 shipments.

On the discouraging side, structural steel prices were raised 3 to 4 per cent —an action that had been anticipated ever since mill workers received a contract wage increase on July 1. Basic prices for carbon plates were boosted $4 (to $106 a ton), standard structural shapes and wide-flange beams were raised $4.50 and $5 (to about $110 a ton), and reinforcing bars generally were increased about $5 (to $108.50 a ton).

But steel was not the only building material going up in price. Reflecting the pickup in home building and other construction, long depressed lumber and plywood prices also started to show marked strengthening last month. Meanwhile, the Bureau of Labor Statistics index of average wholesale building material prices edged up from 129.5 in June to 129.7 in July—its third consecutive monthly advance. At that point it was still 1.3 per cent below the July 1957 index figure of 131.4—but was expected to continue upward.

Building upturn suggests an eventual boom

The accelerating pace of actual building activity and contract awards in June and July was strong enough to suggest a "construction boom in the making." That is the considered, although qualified view of FORUM's consulting economist, Miles L. Colean, who adds:

"While obviously there is still a way to go before another major advance over previous records is attained, the beginnings of a strong upward movement certainly are present, and it seems to be solidly based in housing, utilities, and government construction. These elements certainly show enough vigor to sustain the trend until—sometime next year—we should begin to see an upturn in nonresidential building.

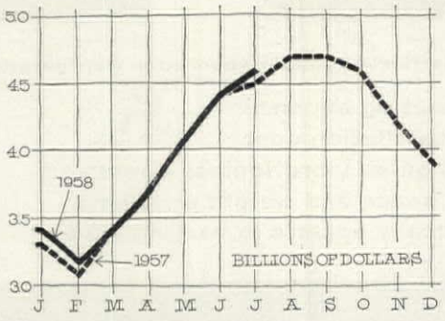
"The value of construction put in place in July—a record for the month—was 5 per cent ahead of June, and 3 per cent ahead of July 1957 (see chart and table).

"Construction contracts awarded in June were $3.8 billion, the highest ever recorded for a single month, according to the F. W. Dodge Corp. This was 12 per cent higher than the $3.4 billion of awards in May, the previous all-time high. Total contracts for the first half of the year still lagged 1 per cent behind the same 1957 period. This lag, however, is being rapidly eliminated."

Private housing starts in July rose to 107,300, or a seasonally adjusted rate of 1,160,000 a year—the highest adjusted rate for any month since January 1956, according to the Bureau of Labor Statistics. For the first seven months of this year, combined private and public starts have totaled 645,500, or 5.4 per cent better than 1957, while the seasonally adjusted annual rate has averaged 1,014,000, or 4.4 per cent over 1957.

The greatest stimulant for home building this year has come from Fanny May (the Federal National Mortgage Association) under the special assistance program authorized in the Emergency Housing Act signed by President Eisenhower on April 1. That act allows Fanny May to give advance commitments to buy FHA and VA mortgages of $13,500 or less on proposed new houses up to a total of $1 billion. Through August 12 it had agreed to buy 58,861 such mortgages, if necessary, for a total of $706 million. On August 15, the Budget Bureau, mindful of the upsurge in home building, boosted Fanny May's authority to issue commitments from $750 million to $850 million.

END



TOTAL CONSTRUCTION in July amounted to $4.6 billion, a record for the month and a 3 per cent gain over July 1957.

BOX SCORE OF CONSTRUCTION

(Expenditures in millions of dollars)

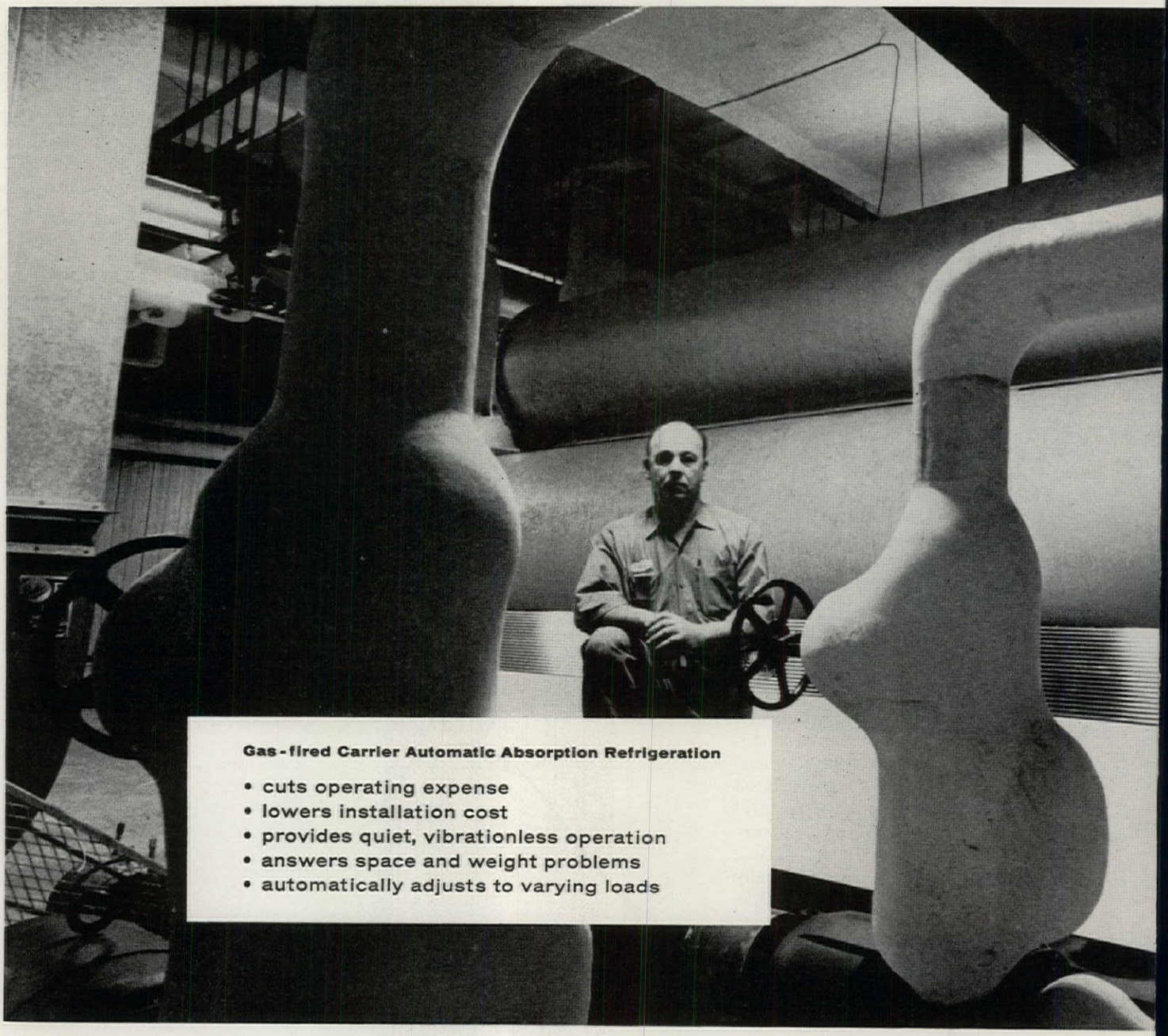
PRIVATE BUILDING	July	Jan.-July		
	1958	1958	1957	±%
Nonresidential	754	5,004	5,389	—7
Industrial	185	1,561	2,110	—26
Commercial	326	1,979	1,955	+1
Office buildings, warehouses	169	1,155	1,008	+15
Stores; restaurants; garages.	157	824	947	—13
Religious	75	464	475	—2
Educational	50	307	289	+6
Hospital; institutions	52	355	270	+31
Residential (nonfarm)	1,627	9,286	9,322	**
Public utilities	542	3,306	3,108	+6
Total Private*	3,114	18,627	18,844	—1
PUBLIC BUILDING				
Nonresidential	420	2,572	2,536	+1
Industrial	36	220	291	—24
Educational	263	1,645	1,583	+4
Hospital; institutions	31	187	197	—5
Residential	67	432	241	+79
Military	105	605	705	—14
Highways	620	2,840	2,652	+7
Sewer; water	127	774	767	+1
Total Public*	1,499	8,073	7,691	+5
*GRAND TOTAL	4,613	26,700	26,535	+1

* *Minor components not shown, so total exceeds sum of parts.*
** *Less than 1 per cent.*

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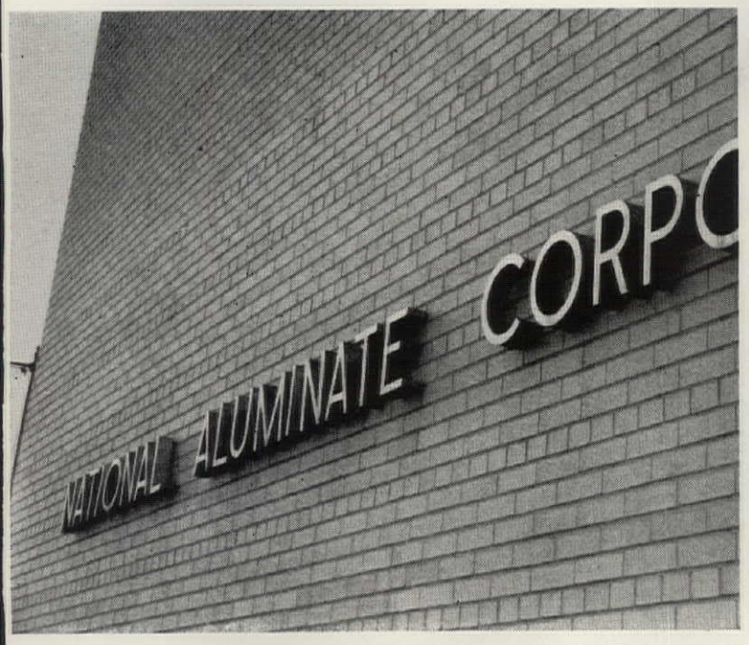
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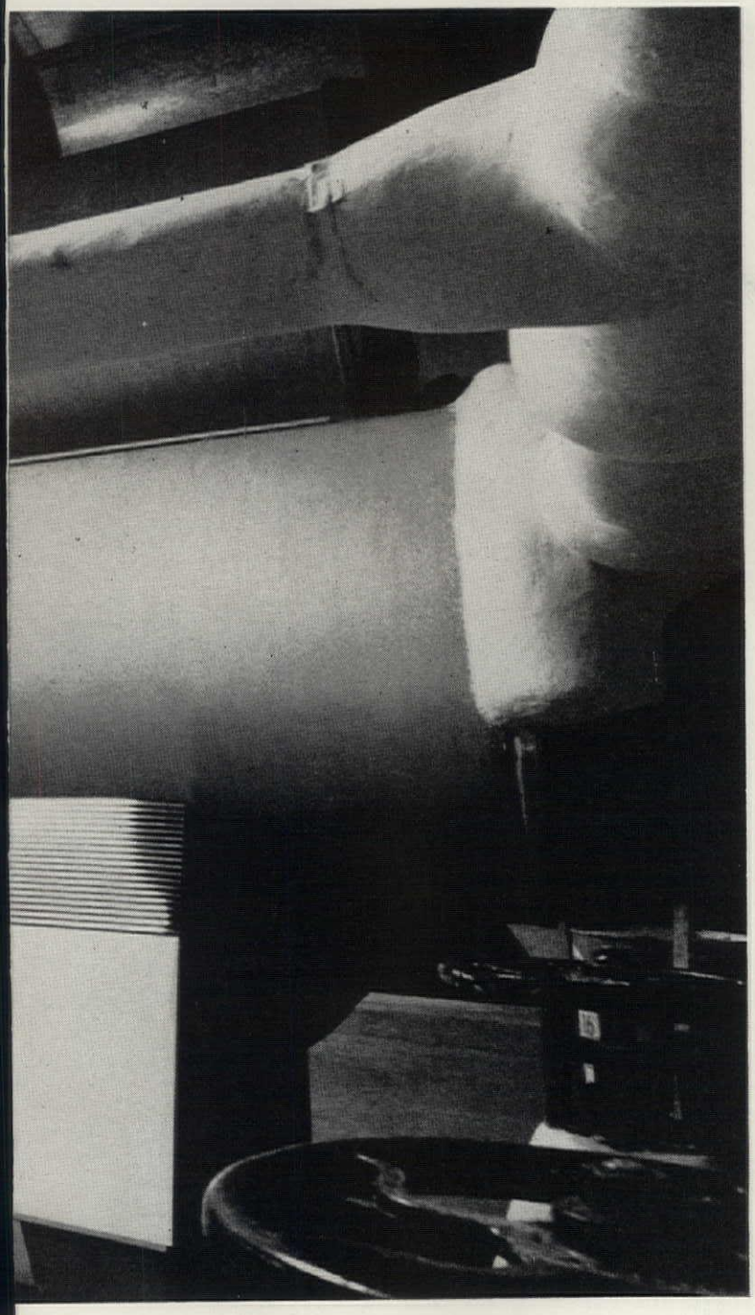


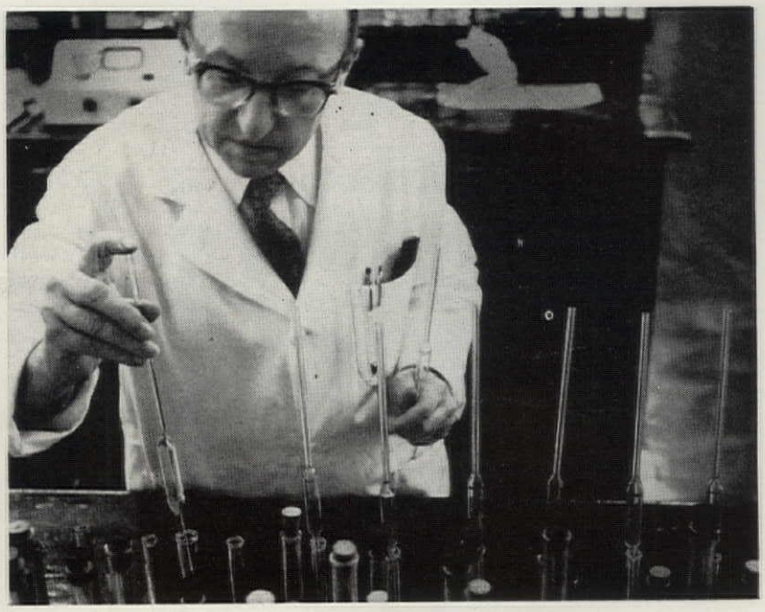
Gas-fired Carrier Automatic Absorption Refrigeration

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- lowers installation cost
- provides quiet, vibrationless operation
- answers space and weight problems
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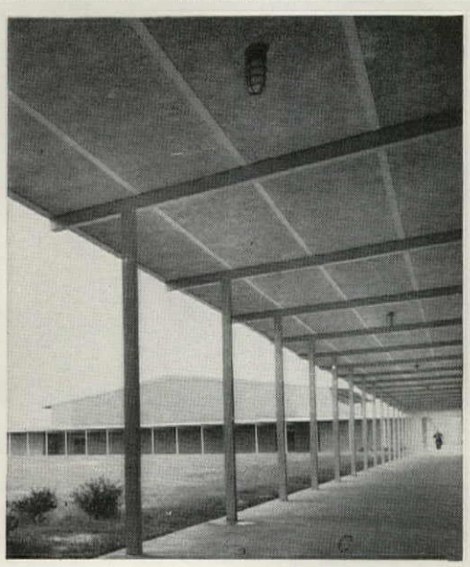
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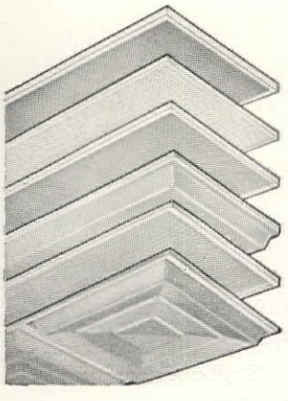
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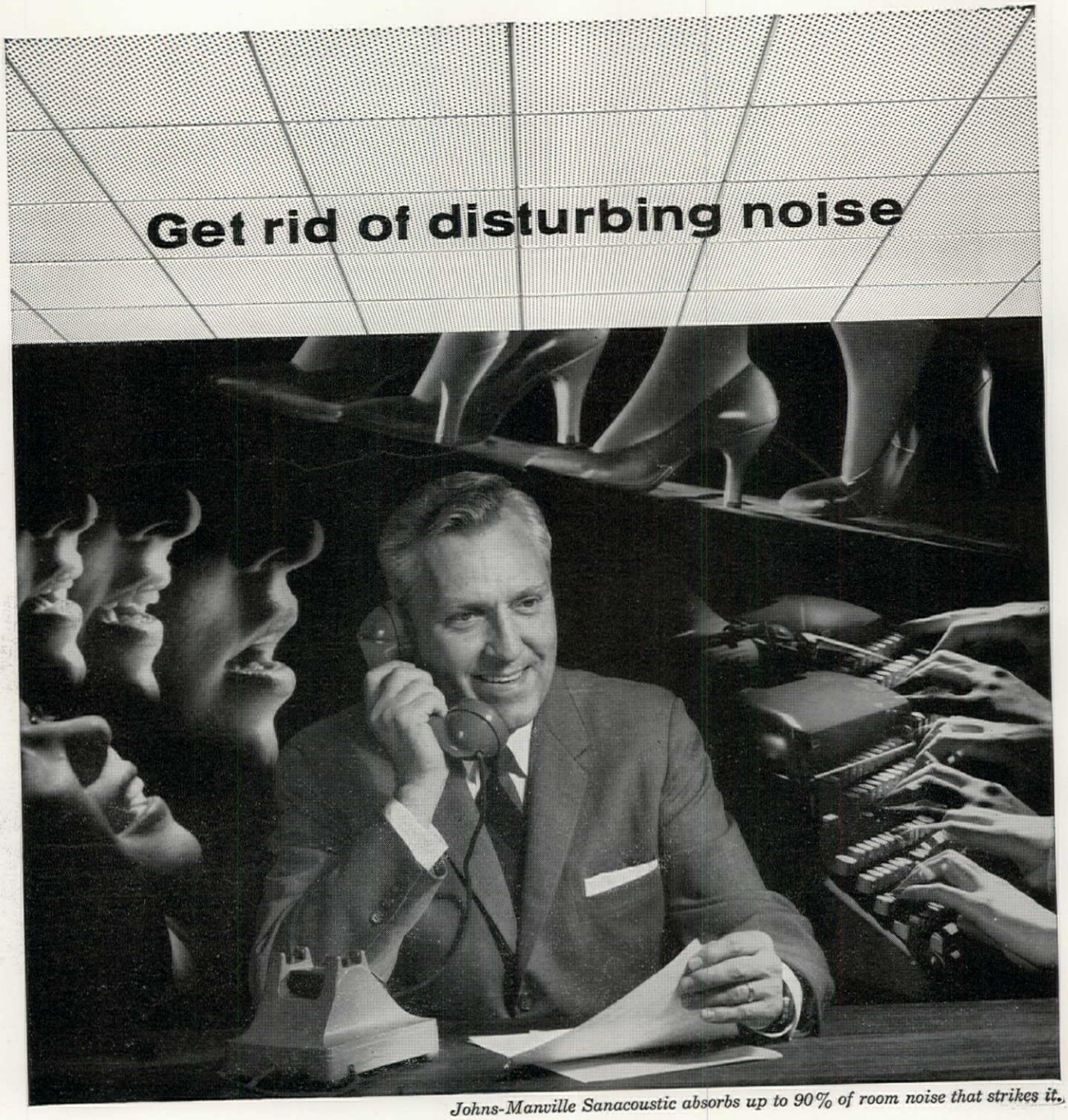
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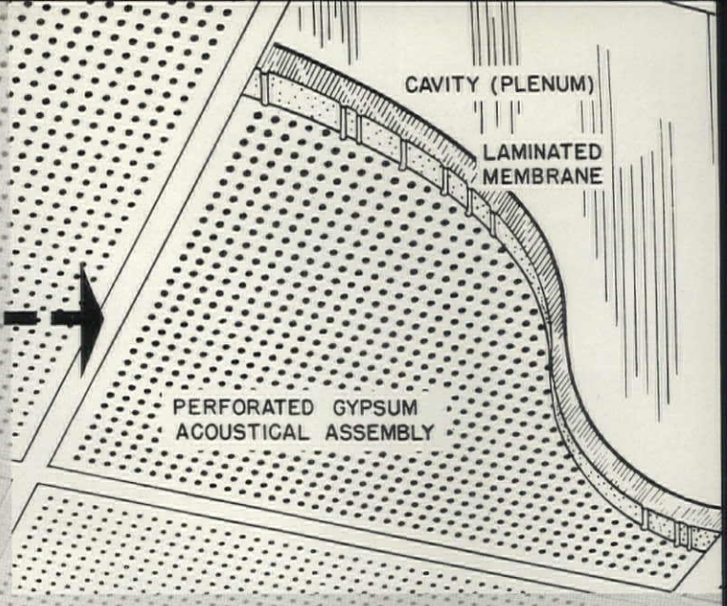
SOUND CONDITIONING

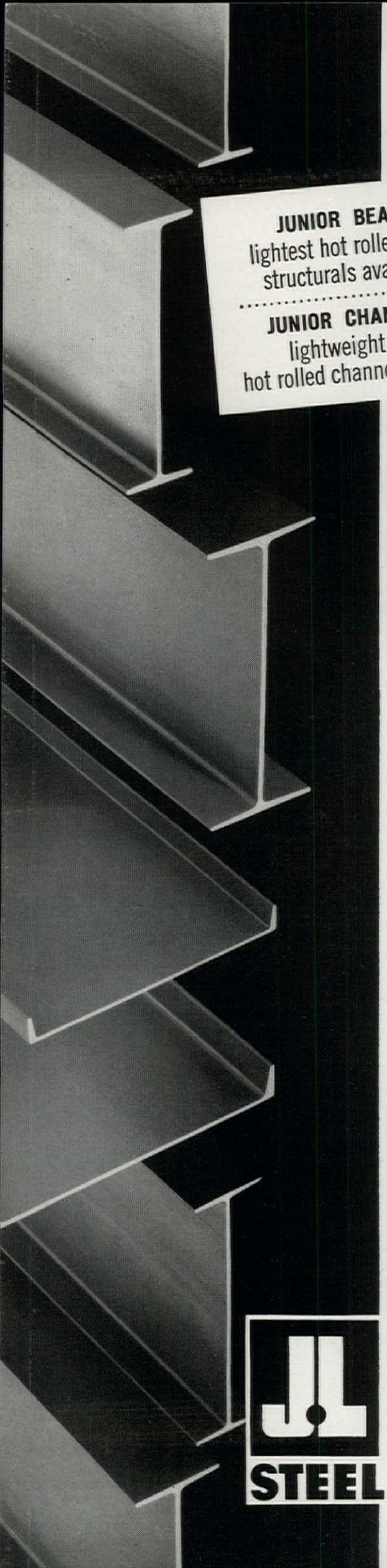
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Cavity Resonance





JUNIOR BEAMS
lightest hot rolled steel structurals available

JUNIOR CHANNELS
lightweight J&L hot rolled channel sections



10″ (9#) Junior Beams are used in this two-story motel as second floor joists and as roof purlins. Second floor system and balcony will support a 40 pound per square foot live load.

"Unique cantilever design utilizes Junior Beams"

. . . says structural designer

Junior Beams play an integral part in unusual design of the new 210 unit South Gate Motor Hotel in Arlington, Virginia, one of the finest on the eastern coast. "We used Junior Beams in a cantilever design that placed the balcony floor at the same elevation as the second floor," reports Mr. George Fortune, of Fortune Engineering Associates, Alexandria, Virginia, the structural designer.

"This design eliminates steps from balcony into the units. The balcony is free of vertical supports," Mr. Fortune said. The three principal buildings utilize 170 tons of 10″ (9#) Junior Beams, lightweight steel structurals made by Jones & Laughlin Steel Corporation. The Junior Beams are used as second floor joists and as roof purlins. Fabrication and erection was done by the Southern Iron Works, Springfield, Virginia.

Two flights of stairs at each end of the balcony provide easy access to second floor units. The stairs are fabricated of 10″ and 12″ Junior Channels, lightweight J&L hot rolled channel sections.

According to Mr. John C. Wright, owner-contractor, the design provides fireproof, attractive buildings at low costs.

Junior Beams are economical and easy to adapt in a wide range of architecture. Economies in fabrication and erection reduce your total cost per square foot.

Investigate advantages of these lightweight Junior Beams and Junior Channels. Call your local warehouse or write Jones & Laughlin, 3 Gateway Center, Pittsburgh 30, Pennsylvania.

Jones & Laughlin Steel Corporation

PITTSBURGH, PENNSYLVANIA

J&L STEEL



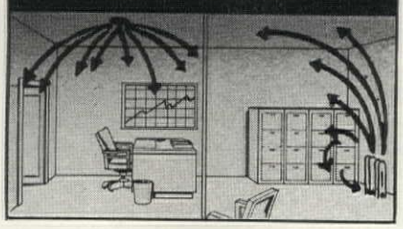
THERE IS NO OTHER

Heating System offering such superior comfort, so efficiently and economically!

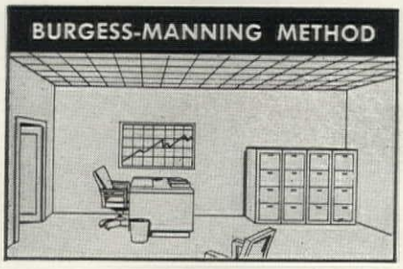
The BURGESS-MANNING Radiant Acoustical Ceiling

The only completely integrated radiant heating, cooling and acoustical ceiling.

OTHER METHODS



BURGESS-MANNING METHOD



Radiant Energy, Nature's own ideal method for providing physical comfort, is utilized by the Burgess-Manning Radiant Acoustical Ceiling in the comfort conditioning of institutional and commercial buildings. It is the only heating system, applicable to such buildings, that successfully integrates radiant heating, cooling and acoustical control in a single unit, and that performs each function with complete satisfaction, efficiently and economically.

Heating and cooling are accomplished entirely without draft producing air currents. Temperatures are more uniform thruout the room, with no cold spots or overheated areas—and with no appreciable variations in temperature from floor to ceiling. The floors are always warmer than room temperature.

All these comfort advantages are obtained without additional building cost, and with actual operating economies. Before erecting your next building, investigate the Burgess-Manning Radiant Acoustical Ceiling —it is the most modern, fully tried and tested comfort conditioning system known today.

Write for Burgess-Manning Catalog
No. 138-2F

Remember
Your Building is better
Your Building Budget no Bigger

SEE OUR CATALOG IN SWEET'S ARCHITECTURAL FILE OR WRITE FOR COPY

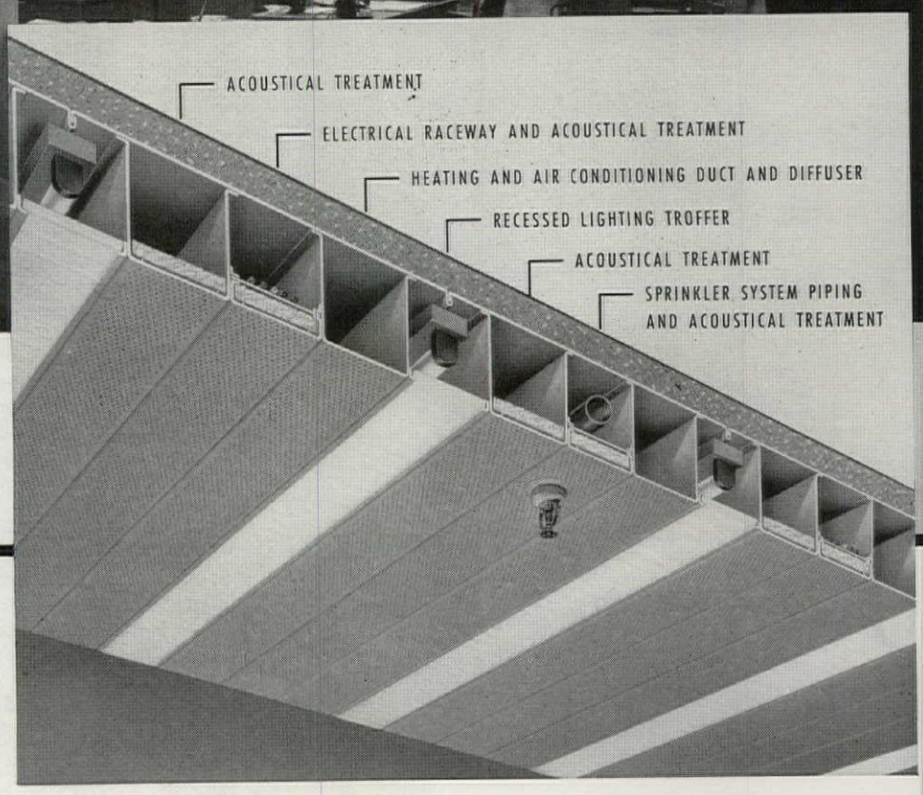
3 Heating Cooling Acoustical

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5970 Northwest Highway, Chicago 31, Ill.

Mahon M-FLOOR Is Utilized



Above: Interior View of Office Building for Whirlpool Corporation, Clyde, Ohio. In this building the Heating and Air Conditioning Ducts and Diffusers, Recessed Lighting, Electrical Raceways, Acoustical Treatment, and Sprinkler System Piping are all contained in the Combined Structural Floor and Ceiling constructed with modified M-Floor Sections. See Detail at Right.

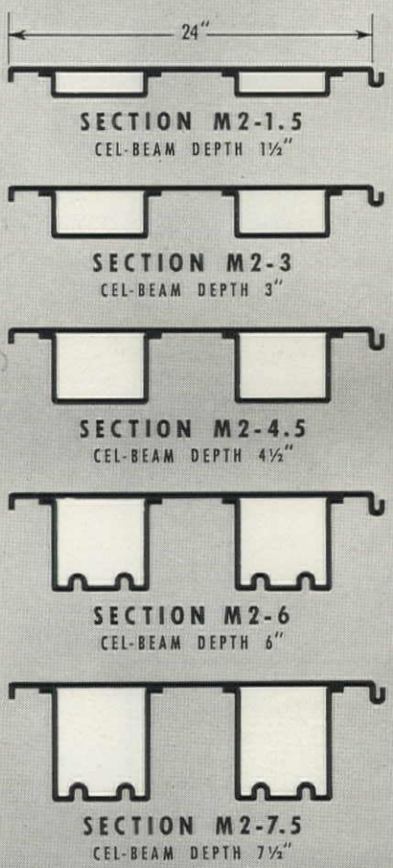


The Cross Section above shows a unique adaptation of M-Floor Construction to provide both the Structural Sub-Floor and Acoustical Ceiling. In this application, Cel-Beams and Channels between Cel-Beams in the M-Floor Sections are ingeniously utilized for several other functional purposes.

for SIX PURPOSES in Addition to Its Primary Use as a Light-Weight Structural Sub-Floor!

Modified M-Floor Cel-Beam Sections Provide: (1) Finished Ceiling Material. (2) Acoustical Treatment in Ceiling. (3) Troffers for Recessed Lighting. (4) Air Ducts and Diffusers for Heating and Air Conditioning. (5) Raceways for Electrical and Telephone Circuits. (6) Housing for Sprinkler System Piping.

MAHON M-FLOOR SECTIONS



☆ OTHER MAHON BUILDING PRODUCTS and SERVICES:

- Insulated Metal Curtain Walls
- Underwriters' Rated Metalclad Fire Walls
- Rolling Steel Doors (Standard or Underwriters' Labeled)
- Steel Roof Deck
- Long Span M-Decks (Cellular or Open Beam)
- Permanent Concrete Floor Forms
- Acoustical and Troffer Forms
- Acoustical Metal Walls and Partitions
- Acoustical Metal Ceilings
- Structural Steel—Fabrication and Erection
- Steel Plate Components—Riveted or Welded

☆ *For INFORMATION See SWEET'S FILES or Write for Catalogues*

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WHEN AMERICA BUILDS FOR ECONOMY . . . IT BUILDS WITH CONCRETE



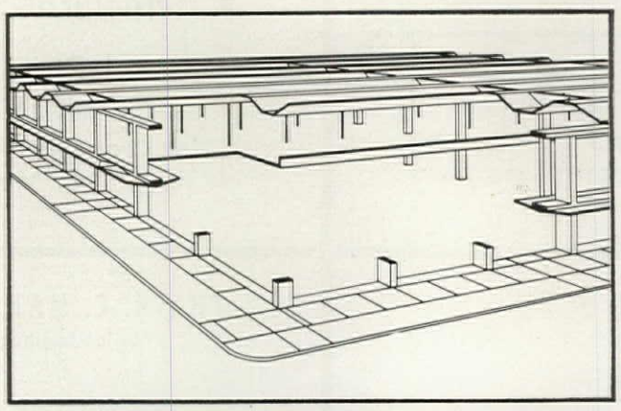
Sears, Roebuck & Company's Tampa store . . .

concrete folded plate roof achieves large, unobstructed floor area

One of the basic requirements here was to achieve unobstructed floor space with economy. Architects Weed, Russell, Johnson & Associates found the answer by using a concrete shell in the form of a folded plate. This construction made it possible to span the entire floor area with only one interior row of columns . . . and suspend the second floor from the roof. The result: 163,715 square feet of *fully flexible* floor space, so important to any retail selling operation.

Folded plate design is, in itself, unique and interesting. And only concrete can give the added boldness of the wide, cantilevered overhang.

It's one more example of the way new uses of concrete are bringing big economies and added vitality to both conventional and modern architecture.

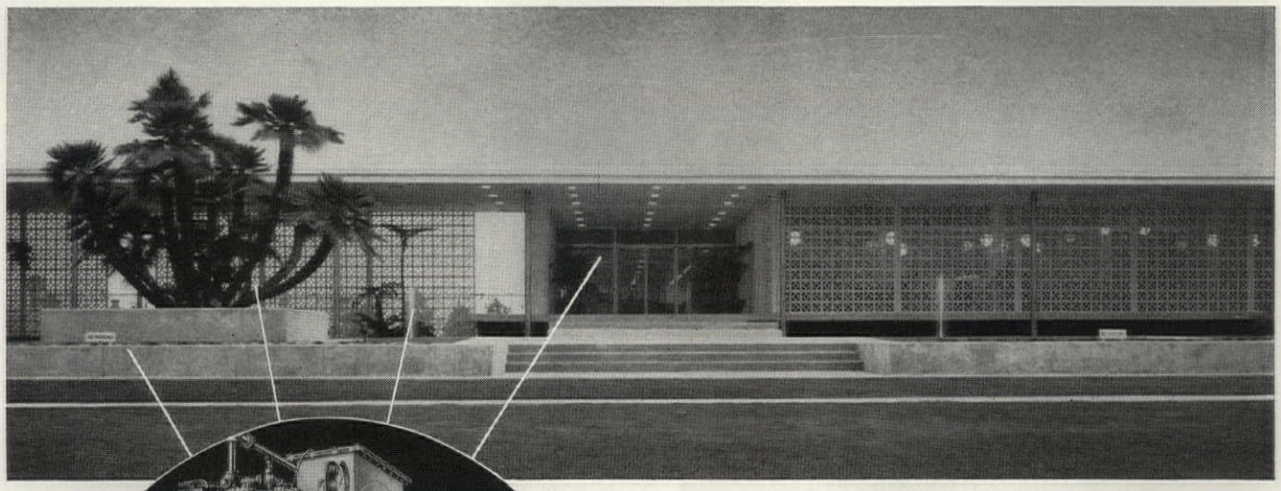


Isometric view showing 125-foot c on c spacing of main columns. Floor slab is supported by 3-inch plates welded together to form a hanger. Hangers are spaced 25 feet c on c.

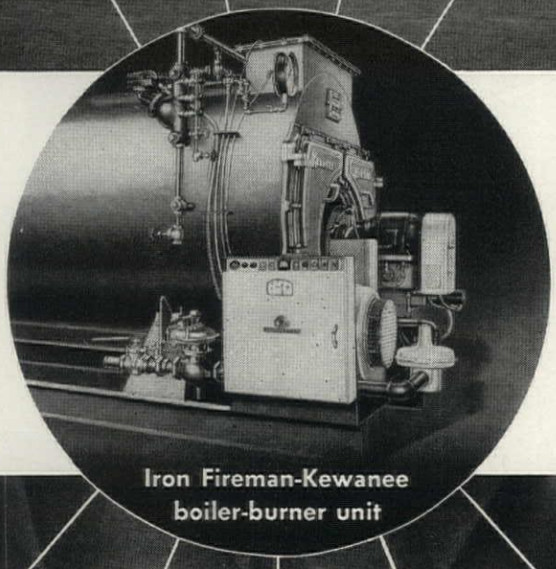
FOR STRUCTURES...
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A national organization to improve and extend the uses of concrete



Screened facade of Stuart Co. plant, Pasadena, California



Iron Fireman-Kewanee boiler-burner unit

Where the *steam* comes from...

for both heating and pharmaceutical processing

One of the notable commercial buildings of the year combines maximum utility with such striking beauty that it has won nation-wide acclaim. Designed by Edward D. Stone, this plant is used by the Stuart Co. for the production of pharmaceuticals.

Up-to-the-minute mechanical equipment includes two Iron Fireman-Kewanee boiler-burner units. Due to forced draft firing, there is no stack to mar the symmetry of the building. Dual-fuel burners efficiently fire gas or any grade of light or heavy oil, with quick changeover.

Complete Iron Fireman boiler-burner units can be easily sized, specified and ordered from a single catalog, with a single model number.

Conservative rating permits an easy, economical "cruising speed" at rated output, with 50% reserve capacity and consequent minimum noise level and low maintenance costs.

Mail coupon for detailed information and specifications.



Lounge and offices overlook spacious atrium

Architect: Edward D. Stone

Mechanical Engineers: Stockly & Bamford

Mechanical Contractors: Hickman Bros., Inc.

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Automatic Door Openings Rate Consideration of Store Planners

An important part of any store front is the door openings. Make them automatic and you get functional efficiency *that is good for business.* Where store doors are operated automatically by STANLEY *MAGIC-DOOR* controls, customers find shopping easier and more pleasant . . . so that's where they do business.

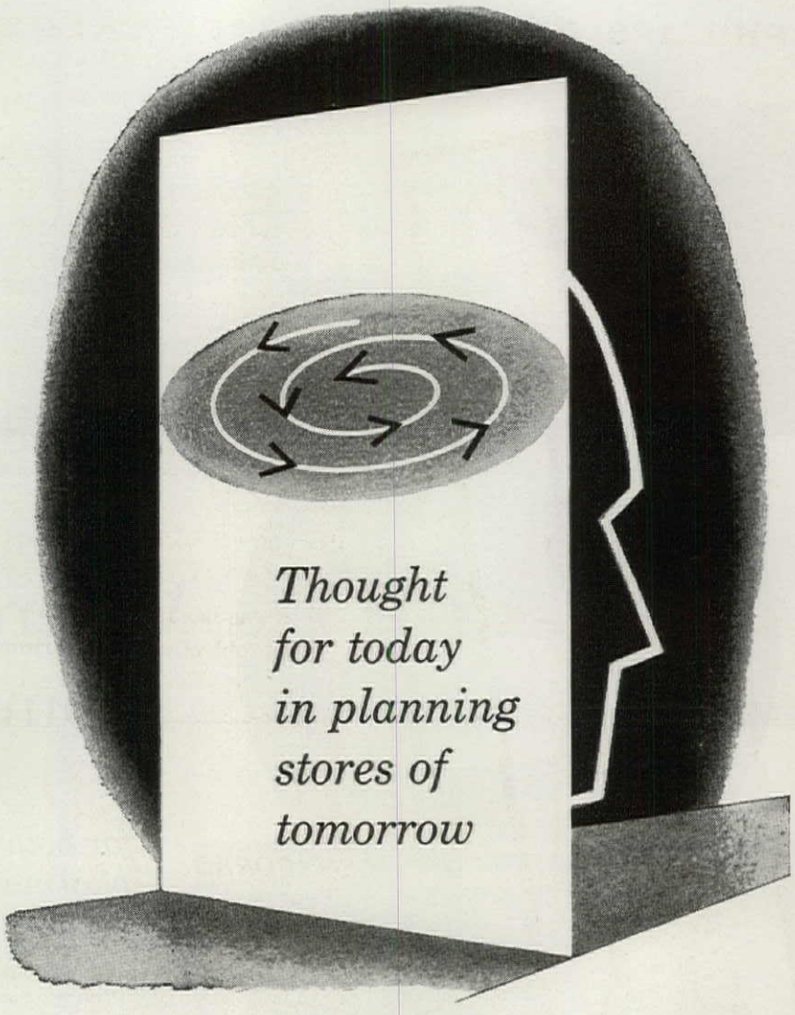


In the complete *MAGIC-DOOR* line, the controls most suitable for the operation of store entrance doors are STANLEY *MAGIC-DOOR* carpet or photoelectric controls. Because of the growing trend toward more colorful store entrances, STANLEY *MAGIC-DOOR* carpets are available in a range of weather-fast, traffic-resistant colors.

MAGIC-DOOR operators may be visible or concealed overhead or in the floor. *They meet every architectural requirement of space and appearance.*



When planning automatic door openings for tomorrow's stores, remember that *MAGIC-DOOR* has been the leader in the field for a quarter of a century. Write for complete information and the address of your *MAGIC-DOOR* authorized representative.



. . . . . **STANLEY**

MAGIC-DOOR Controls

Design functional efficiency into your store plans by including automatic door controls. And in making your selection *look to the leader in the field* . . . STANLEY *MAGIC-DOOR*. *MAGIC-DOOR* controls are products of a quarter-century of experience. In thousands of installations, they have proved dependable.

Call on the authorized STANLEY *MAGIC-DOOR* Representative for ideas and technical planning assistance at the planning stage.

For immediate information, see Sweet's Architectural File or write for A.I.A. File No. 16-D to Magic Door Sales,

The Stanley Works, Dept. I, 1005 Lake Street, New Britain, Conn.

Sales and service representatives throughout the United States and Canada.

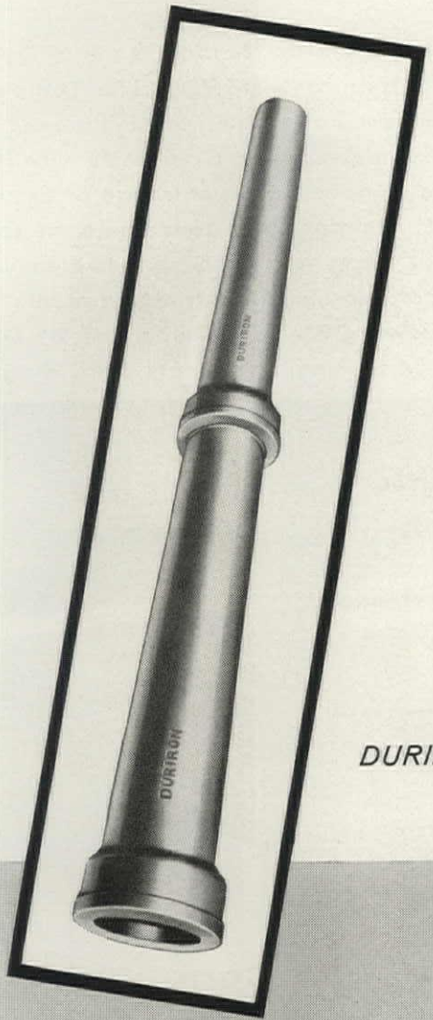
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This famous trademark distinguishes over 20,000 quality products of The Stanley Works—hand and electric tools • drapery, industrial and builders hardware • door controls • aluminum windows • metal parts • coatings • steel and steel strapping—made in 24 Stanley plants in the United States, Canada, England and Germany

They'll never need worry about drain line replacement at

PHILLIPS RESEARCH CENTER CHEMICAL LABORATORIES!

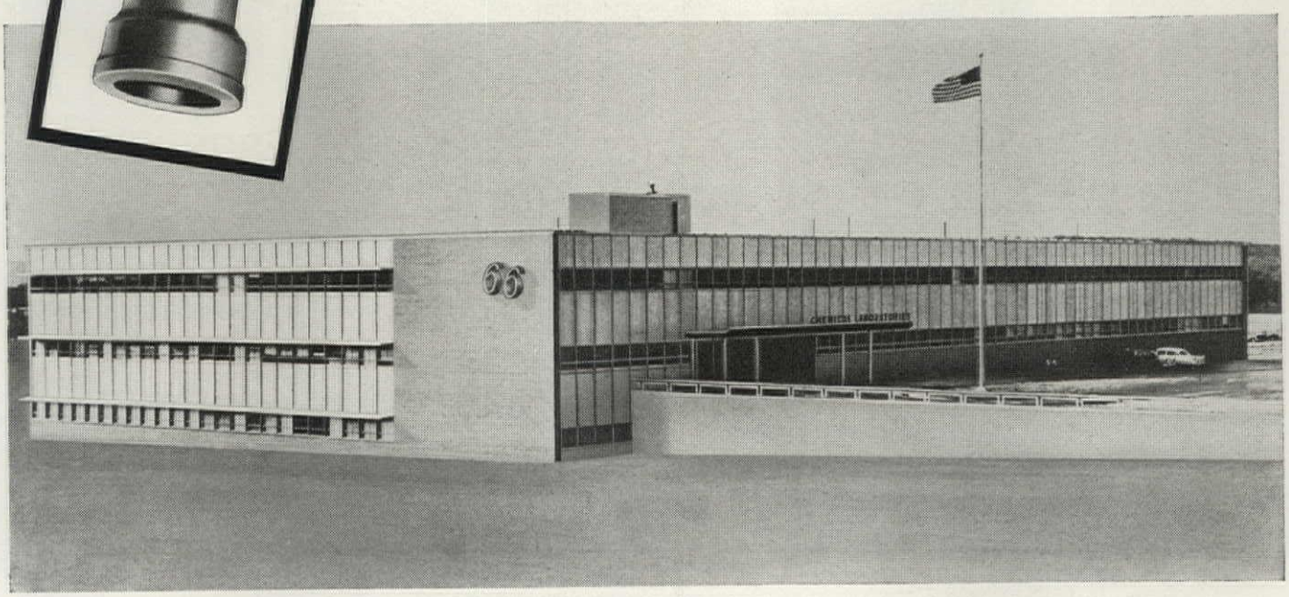


Severe attack caused by acids such as sulfuric, nitric, hydrochloric, or phosphoric add up to costly repair bills. The Phillips Petroleum Company, in this Bartlesville, Oklahoma, installation, chose Duriron because it can handle *all* the tough corrosive liquids. Duriron can be installed without the worry of future replacement costs.

Duriron is the *only* pipe which has a completely homogeneous, high silicon iron wall thickness. This assures permanent protection when and where it's needed.

The next time you have an acid handling problem, specify Duriron corrosion resisting pipe and fittings. Available through plumbing jobbers in most principal cities.

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For architectural adaptability,

PITTSBURGH

HERCULITE®—In this new building of the First National Bank of Des Plaines, Des Plaines, Illinois, Pittsburgh's HERCULITE Tempered Plate Glass Doors are assurance of architectural "fitness," plus long life and low maintenance expense. Combined with Pittsburgh Polished Plate Glass, here is an open-vision entrance of extraordinary appeal. HERCULITE has more than four times the strength of regular glass of the same thickness. It is ideally suited to all types of commercial, industrial and public buildings. Architects: Charles Edward Stade & Associates; M. Dolan & H. Anderson—Associate Architects, Park Ridge, Illinois.



With the PITTCOMATIC® automatic door opener, HERCULITE and TUBELITE Doors open at a "feather touch." Known everywhere as the "nation's finest automatic door opener," the PITTCOMATIC is easily installed and maintained. It is the safest to operate. Available for handle, mat or remote control.

Sections 16a and 16d of Sweet's Architectural File contain complete information on Pittsburgh Doors. If you wish specific or more detailed information, a letter to Pittsburgh Plate Glass Company, Room 8266, 632 Fort Duquesne Boulevard, Pittsburgh 22, Pennsylvania, will result in prompt attention, without obligation.

long, trouble-free service—specify

DOORS

TUBELITE®—The architectural flexibility of Pittsburgh Doors is again demonstrated in the Stephens Garden Center floral shop, in Columbus, Ohio. Here, TUBELITE Doors and Frames were chosen because of their clean, simple lines. A distinct advance in hollow metal entrance design, the frames have an exclusive interlocking feature which gives them the greatest possible rigidity. These TUBELITE Doors and large window areas of Pittsburgh Polished Plate Glass give this shop an inviting, open-vision look. Owners report that they have already experienced a large increase in business. Architect: C. Melvin Frank, A.I.A., Columbus, Ohio.



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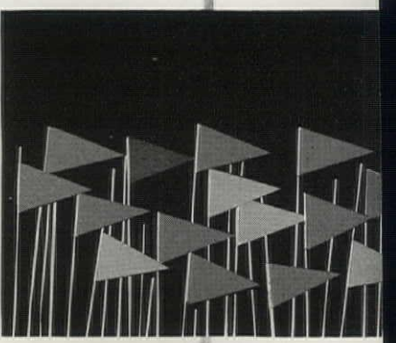
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Winnipeg:
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Havana:
The Independent Elec. Co.

HAWAII
Honolulu:
Hawaiian Ltg. & Sup.

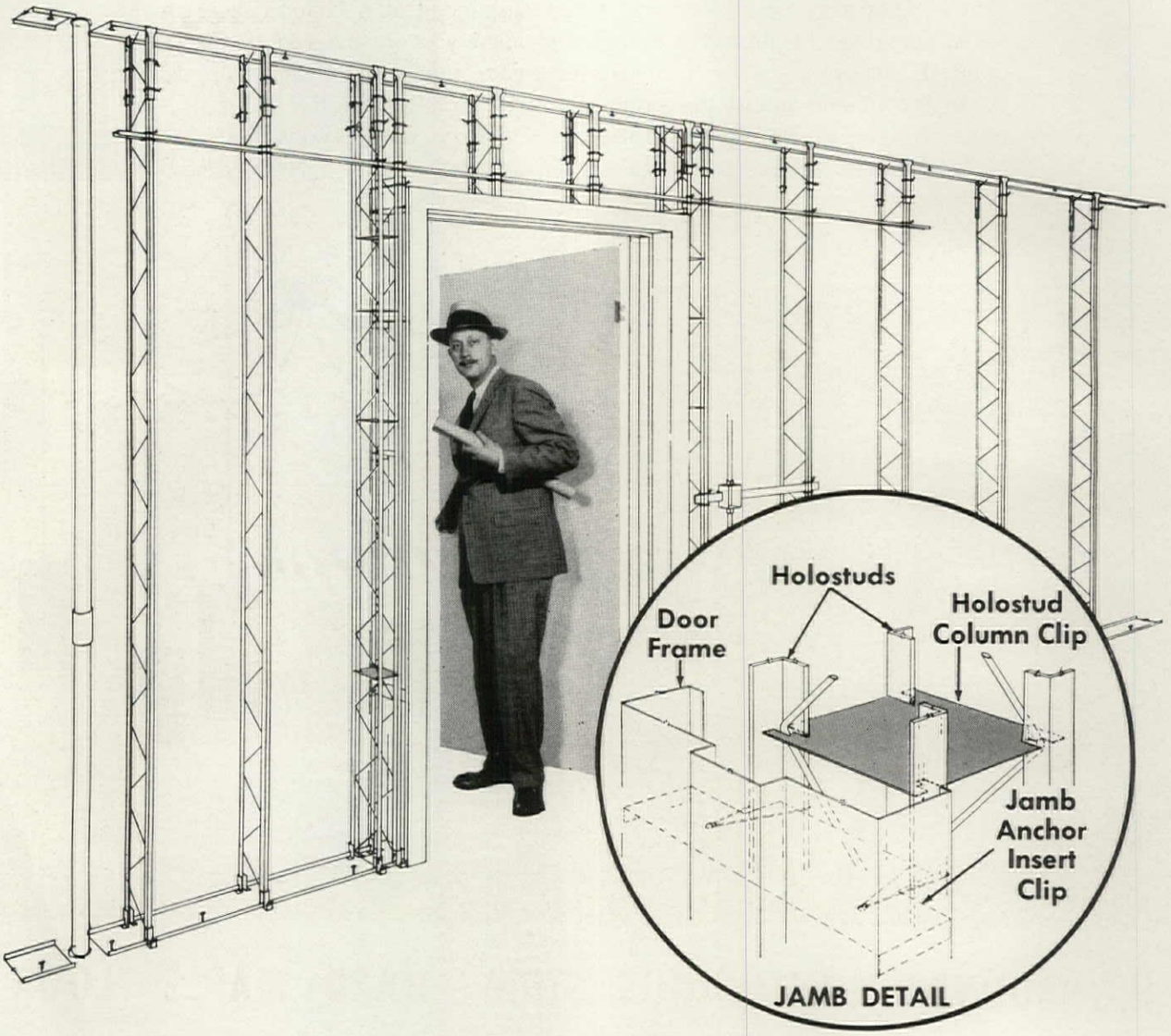
CARNIVAL is Lightolier's exciting new collection designed to be combined into any form your needs and tastes dictate. The five pendants shown here (two available in festive colors) may be mounted on five different ceiling canopies to compose one, three, six or twelve light fixtures. They may be mixed or matched, suspended at a uniform level or set at staggered heights. Whatever arrangement your imagination suggests, Carnival conveys a wonderful quality of gaiety and warmth. On view now at our showrooms and at the authorized distributors listed left. For the 40-page, full-color Portfolio Collection Catalog, write today on your professional letterhead to Lightolier, Dept. C, Jersey City 5, New Jersey.





LIGHTOLIER

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New Gold Bond Holostud Column Clip reduces plaster cracks at door openings

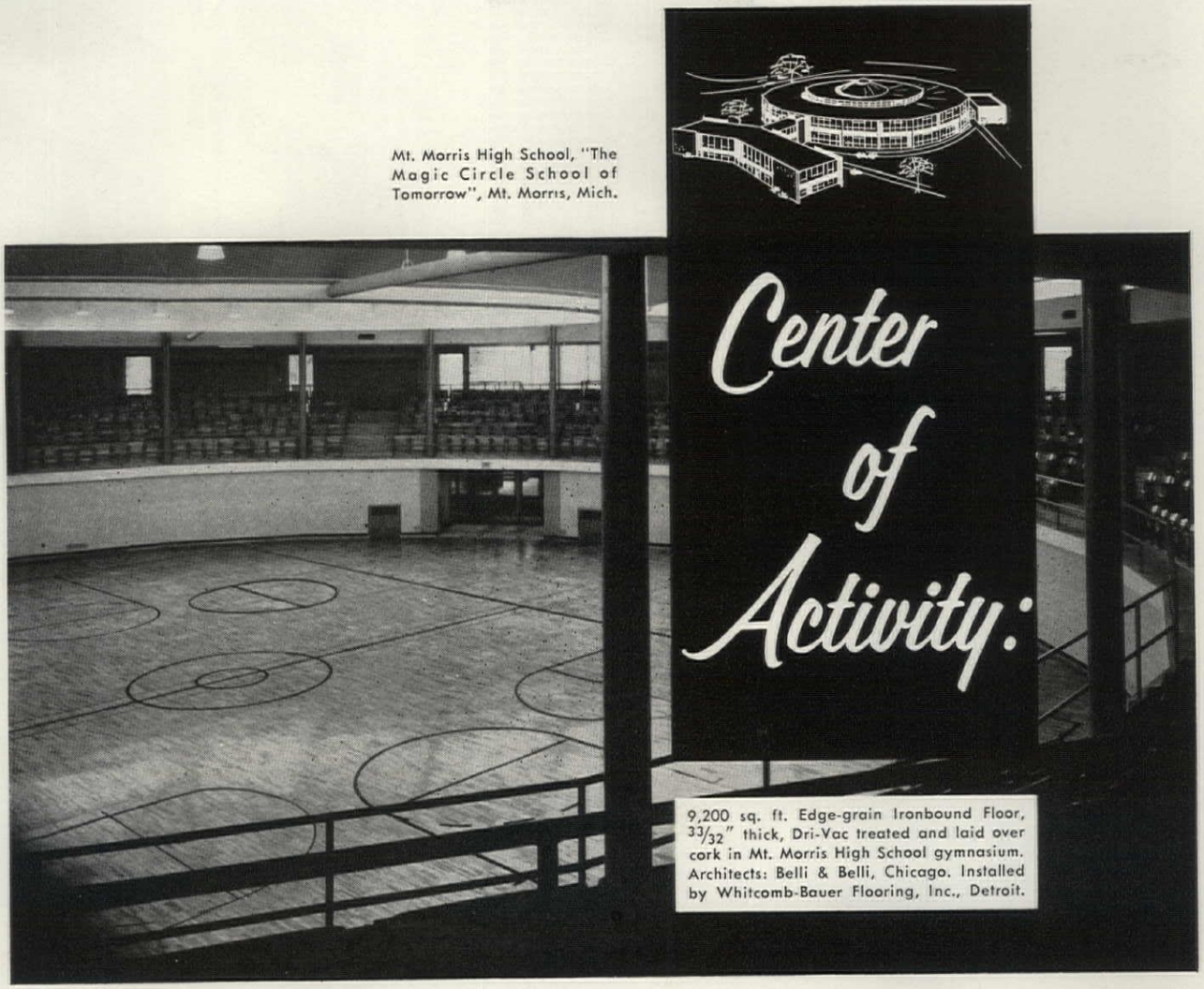
HERE'S a practical way to prevent plaster cracks around door openings. This new Column Clip locks two Gold Bond Holostuds together, forming a rigid, four-cornered column. By transmitting shocks evenly throughout the wall panel, this new construction minimizes plaster cracks at top corners of doors and along the sides.

Exclusive Gold Bond® Holostud Column Clips are easy to install, need no special tools. Just twist into place between studs where the door jamb is wired to the stud, four clips on each side of the door. It costs very little, gives maximum protection.

For additional information on this new Holostud Column Clip — and the entire Holostud System — write Dept. AF-98, National Gypsum Company, Buffalo 2, New York.

Gold Bond
BUILDING PRODUCTS

NATIONAL GYPSUM COMPANY



Mt. Morris High School, "The Magic Circle School of Tomorrow", Mt. Morris, Mich.

9,200 sq. ft. Edge-grain Ironbound Floor, $^{33}/_{32}$" thick, Dri-Vac treated and laid over cork in Mt. Morris High School gymnasium. Architects: Belli & Belli, Chicago. Installed by Whitcomb-Bauer Flooring, Inc., Detroit.

IRONBOUND* CONTINUOUS STRIP* HARD MAPLE FLOOR

All activity at the striking new Mt. Morris High School centers around the gymnasium. Surrounded by classrooms and situated between two wings, the gym is the focal point of the entire structure. Therefore the type of gym floor chosen for this area was especially important. A Northern Hard Maple floor was a must because of its bright, natural beauty and smooth splinter-free surface. In addition, the floor had to be shock-absorbent and uniformly resilient. An Ironbound floor not only meets all these requirements, but it offers much more to preserve the original condition of the floor.

Since the gym floor is below grade, edge-grain Ironbound was chosen because it will expand and contract less than other floors under difficult moisture conditions. The individual slats will remain smooth and tight, bound together with long, barbed steel splines. For extra protection against moisture absorption, the flooring was vacuum-treated by the Dri-Vac process. The treatment will also protect the floor against rot, fungus, and termites.

If you have had problems with excessive expansion and "cupping" of gym floors, perhaps an edge-grain Ironbound floor is the solution.

For information and name of your nearest franchised installer, write Robbins Flooring Co., Reed City, Mich., Attention: Department AF-958.

T.M. Reg. U.S. Pat. Off.

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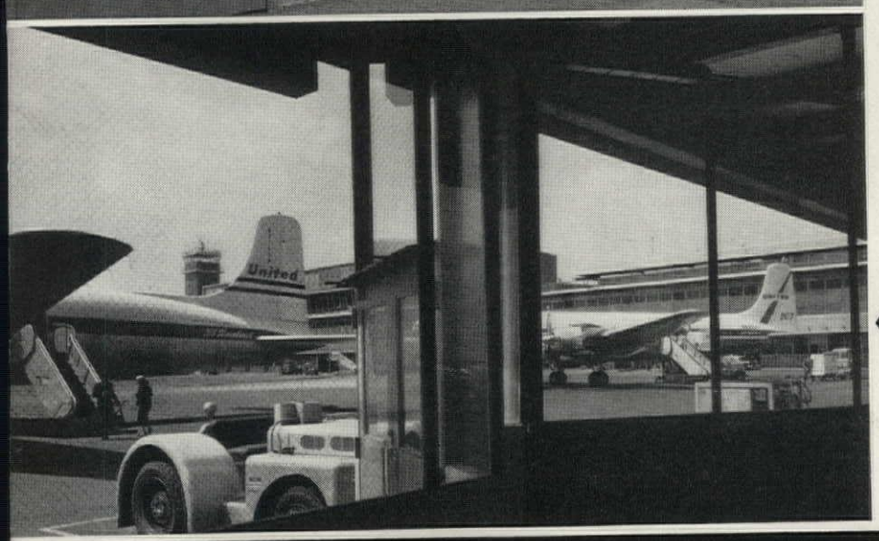


There is no substitute for safety, and Polished Misco (wired) affords proven protection for youngsters in the new Walt Disney Elementary School, at Tullytown, Pennsylvania.

Architect: John Carver,
2112 Spruce St., Philadelphia, Pennsylvania

Heat absorption provided by 38,750 sq. of Mississippi Coolite glass make patients more comfortable in the John J. Kane, Allegheny County Institution District (Hospital for the Indigent Sick).

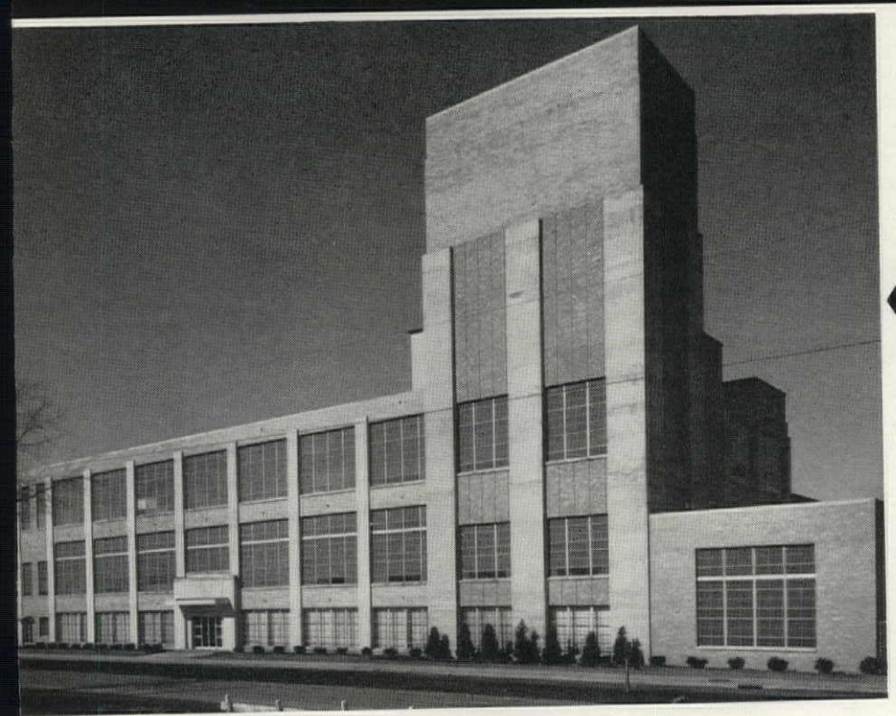
Associate Architects: Button & McLean—Mitchell & Ritchey, Pittsburgh, Pennsylvania
General Contractor: Sherry Richards Company, Chicago, Illinois
Glazing: United Plate Glass Company, Pittsburgh, Pennsylvania



At the Philadelphia International Airport, modern vistas are created by 10,000 sq. ft. of 60" wide lights of Polished Misco (wired glass).

Architect: Carrol, Grisdale and Van Allen, Philadelphia, Pennsylvania
Glazing: Pittsburgh Plate Glass Company

ROLLED GLASS . . . .



New factory of American Chicle Company, Rockford, Ill. where 14,000 sq. ft. of Coolite Wire glass, Glare Reduced, combines heat absorption with protection.

Architect: William Higginson & Sons, New York, N. Y.
General Contractor: Sjostrom & Sons, Inc., Rockford, Illinois
Glazing: National Mirror Works, Rockford, Illinois

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MISSISSIPPI GLASS CO.

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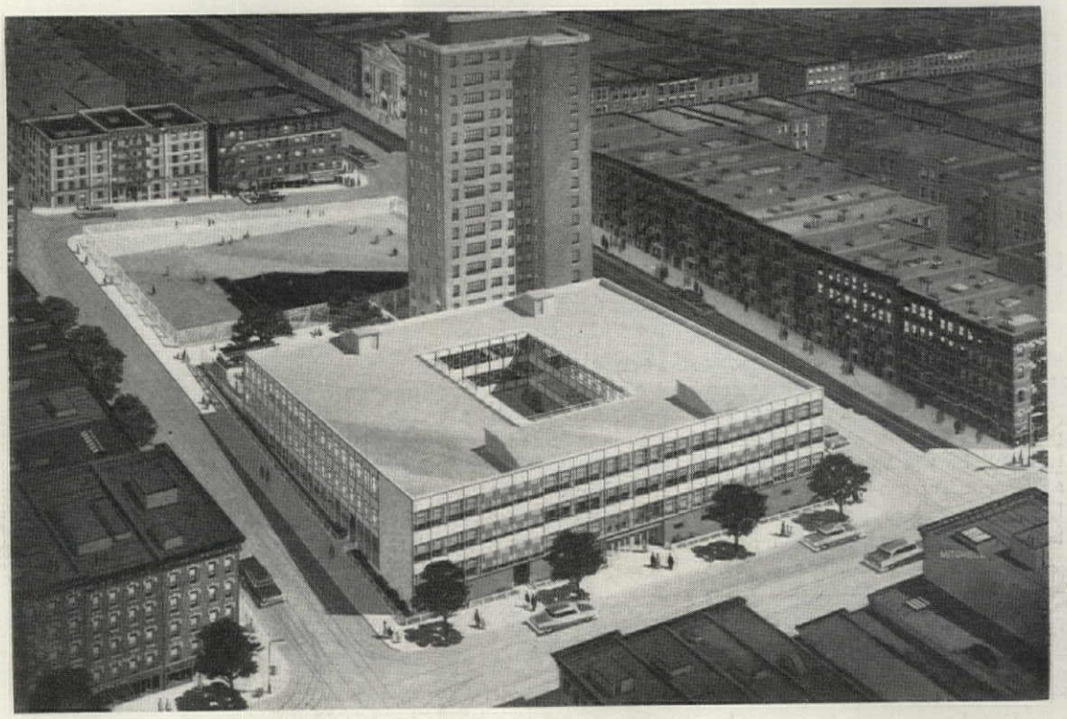
SEE US AT:
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New York Coliseum, Booth #2178,
November 3-7, 1958.

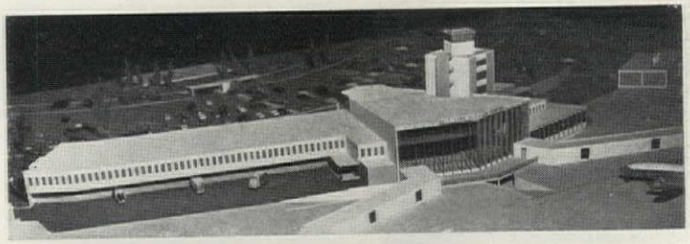
BLICKMAN

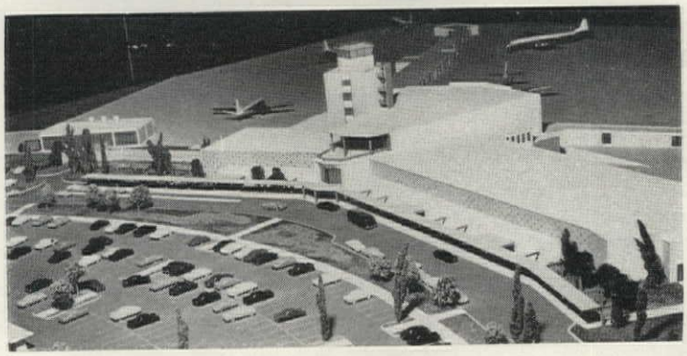
Pioneers in Alloy Fabrication

FOOD SERVICE EQUIPMENT • HOSPITAL EQUIPMENT • LABORATORY EQUIPMENT • CUSTOM ALLOY PRODUCTS

A roundup of recent and significant proposals







AIRPORT TERMINAL FOR SALT LAKE CITY

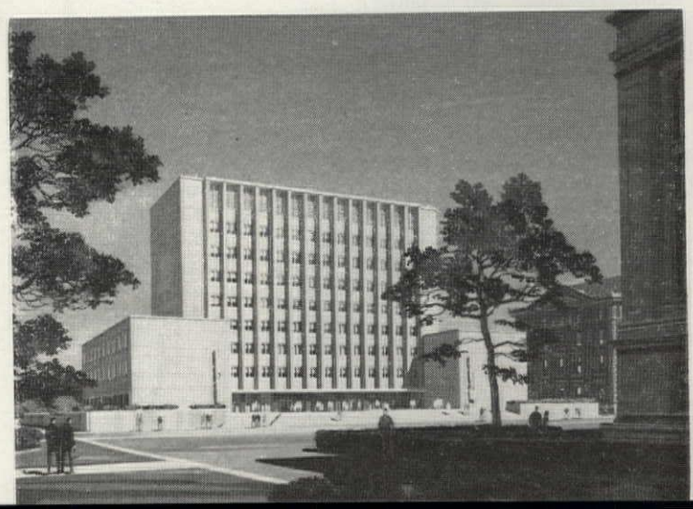
Salt Lake City Architects Ashton, Evans & Brazier have drawn plans for the Salt Lake City airport terminal building shown above. Construction: exterior of quartz panels, mica-faced concrete, and brick; main floor of terrazzo, interior walls of brick and ceramic tile; closed walkways of lightweight concrete block. Scheduled for completion by 1960, the building will cost $4 million, plus another $1 million to be spent on approach roads, taxi ramps, and parking lot.

ELEMENTARY SCHOOL FOR HARLEM

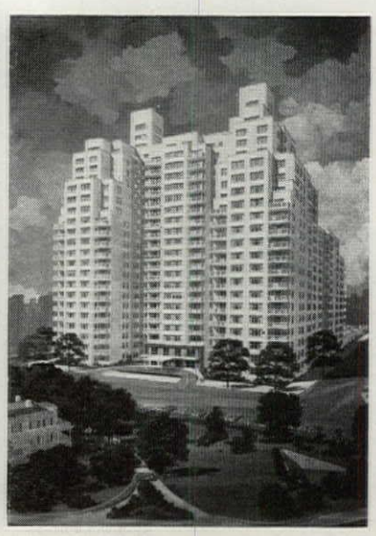
On the southern fringe of East Harlem, the New York City Board of Education will soon erect the glass-sheathed, $2 million elementary school shown above. Designed around a 54-by-82-foot open court, the 34-classroom school will have 115,000 square feet of floor space for about 1,300 children. Because of a sloping site, it will be four stories at one end, two at the other. Architects: Urbahn, Brayton & Burrows. (Tower at rear is an apartment house.)

BUSINESS SCHOOL FOR COLUMBIA UNIVERSITY

Columbia University is campaigning for funds to build a new home for its Graduate School of Business. Shown below is the proposed eight-story, limestone-faced school which will be built atop Columbia's cliff-hanging University Hall, a low-slung, unfinished recreation center. Architects for the $5 million project, which will have an overall floor space of 145,000 square feet, are Moore & Hutchins.







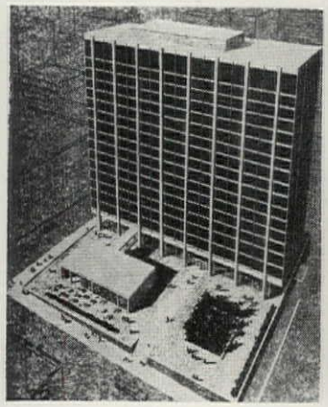
NEW YORK APARTMENT WITH ROOFTOP SWIMMING POOL

A 20-by-40-foot swimming pool 21 stories above Manhattan will be the top attraction at Gracie Towers—a $10 million cooperative apartment house to be erected by Builder Alfred L. Kaskel on East End Avenue between 88th and 89th Streets. The first such facility in New York apartment history, the rooftop pool will be surrounded by a patio, flanked by card rooms, an exercise room, and showers. Architects for the building, which will have 188 luxury suites selling for about $4,000 per room, are Sylvan and Robert Bien.



JAPANESE DEPARTMENT STORE

New York City Architects Steinhardt & Thompson are remodeling Leighton's men's furnishings store on Manhattan's Fifth Avenue, at the corner of 46th Street, for Japan's Takashimaya Company, largest retail operation in the Orient. The first Japanese department store ever built in this country, it will have 11,000 square feet of floor space for selling all types of imported Japanese goods. Interior design for the building, which will be completed next month, is by Architect Junzo Yoshimura of Japan. Cost of the remodeling: $150,000.





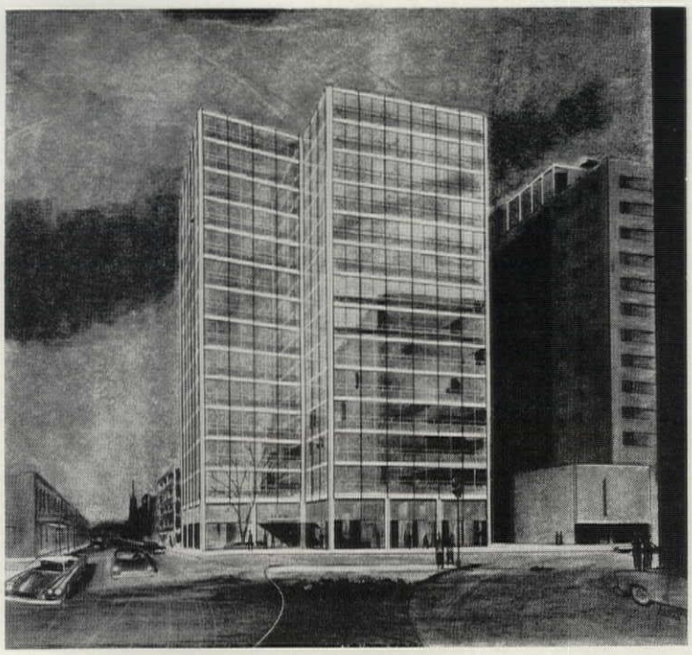
NEW HILTONS FOR PORTLAND, OREGON, AND ROME

The two multimillion dollar Hilton hotels above are soon to rise at distant points on the globe. The 17-story, 500-room building at left, a Skidmore, Owings & Merrill design, will be built in downtown Portland, Oregon at a cost of $10 million. The other will be built atop Monte Mario, overlooking the Tiber River and Rome. A ten-story, 400-room, glass-and-concrete structure designed by Roman Architect Emilio Piffery, it will cost $8 million. Scheduled completion date: 1960—in time for the Olympics.



APPAREL STORE FOR CEDAR RAPIDS

Armstrong's apparel store (right) will represent the largest building investment ($2½ million) in the history of Cedar Rapids' central business district. Designed by David J. Griswold & Associates of Minneapolis, it will be five stories high, with the first floor faced with glass, the next three with brick, and the top floor rimmed with glass and gold aluminum panels. Total floor space: 114,000 square feet. Completion date: July 1959.



GLASS TOWER FOR NEW ORLEANS

A year from now, this steel-frame, glass - and - marble-sheathed office tower will rise 14 stories above the corner of Tulane Avenue and South Rampart Street in New Orleans. To be built by New Orleans Developer Shepard M. Latter, as part of the city's fast growing Civic Center, it will contain over 100,000 square feet of rentable floor space (about 7,000 square feet per floor). Architects: August Perez & Associates and E. B. Silverstein. Cost: $2 million.

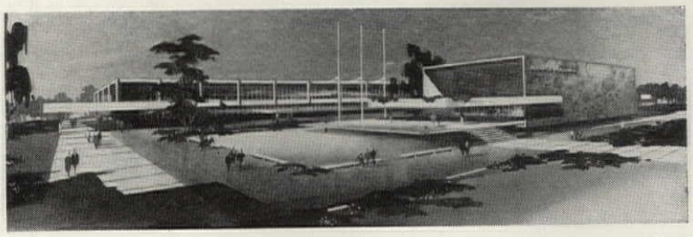
SKATING RINK IN PHILADELPHIA

The drawing below is not of Rockefeller Center—but of a subconcourse iceskating rink and shopping-and-dining complex being built by the Union News Company at Philadelphia's Penn Center. To be ready later this fall, the complete project (rink, restaurant, cocktail lounge, and six stores) will cost $750,000. Vincent G. Kling is the architect.



SCIENCE CENTER FOR CALIFORNIA CAMPUS

Architects Pereira & Luckman have designed the $750,000 science building shown at right as one of the first steps in their long-range, $3 million development plan for Pepperdine College in Los Angeles. Scheduled for completion by late 1960, the two-story, steel-frame building will be used by 1,000 students of physical and biological sciences. Overall floor space will be about 48,000 square feet.





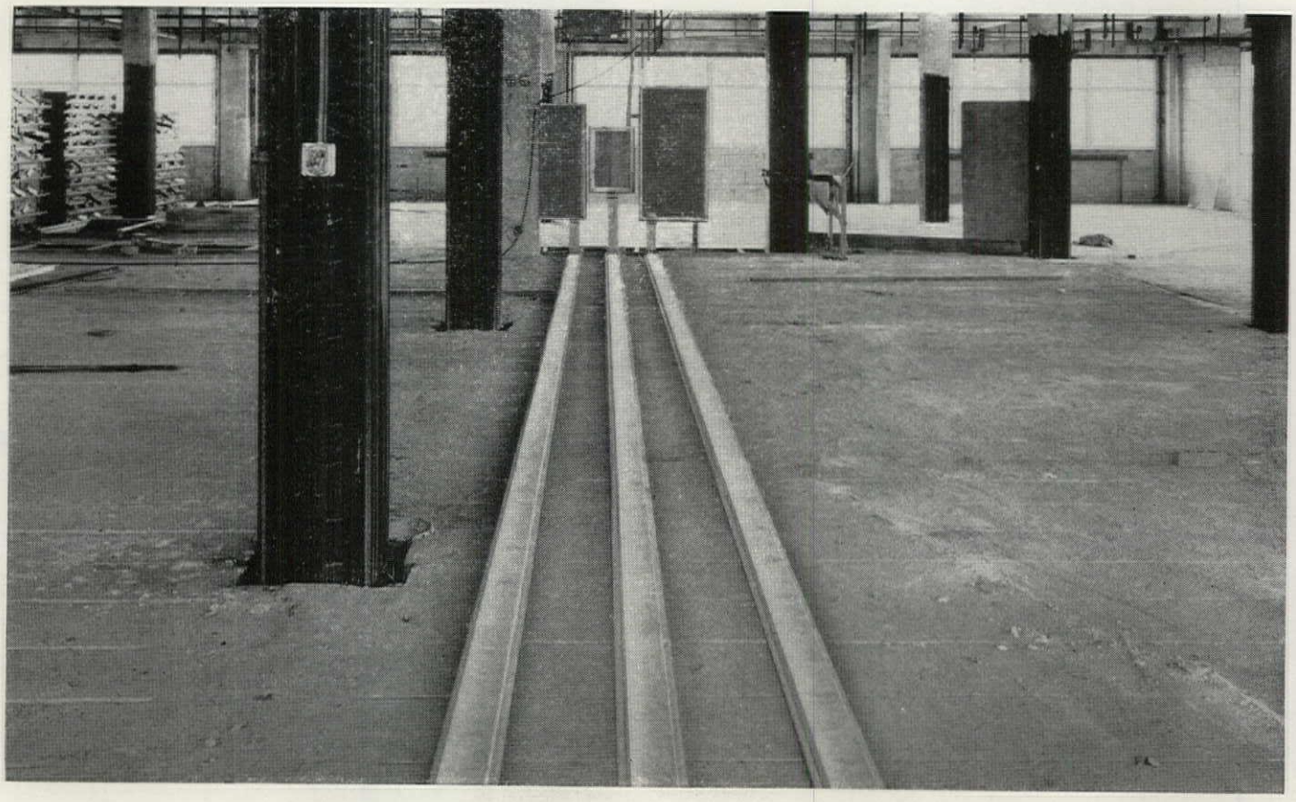
CHAMPAGNE CELLAR IN CALIFORNIA

On a 17-acre site near Saratoga, California, the world's largest champagne "cellar" (left) is being built by Paul Masson Vineyards from plans by San Francisco Architect John S. Bolles. Two separate structures — one a reception and tasting hall (11,100 square feet), the other a processing and aging area (121,600 square feet) for about four million bottles—make up the $2½ million project.

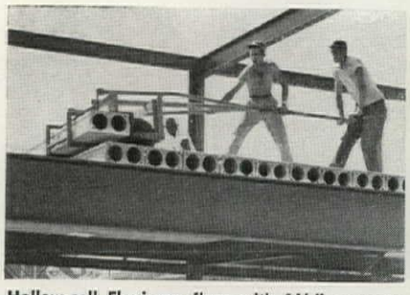


TEACHERS' HEADQUARTERS IN CALIFORNIA

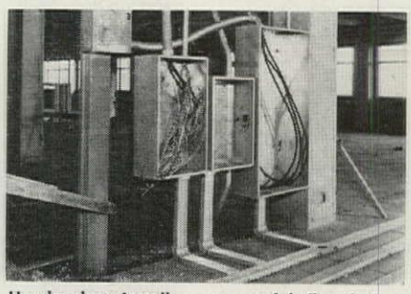
A $1½ million headquarters building for the California Teachers Association is now under construction on a six-acre site in Burlingame. The glass-and-concrete structure at left will be banded by a 20-foot-high, gold aluminum sunscreen. Offices will be in the screened-in, three-story main section; lounges and conference rooms in the one-story wing. Over-all floor space: 60,000 square feet. Welton Becket & Associates are the architects. END



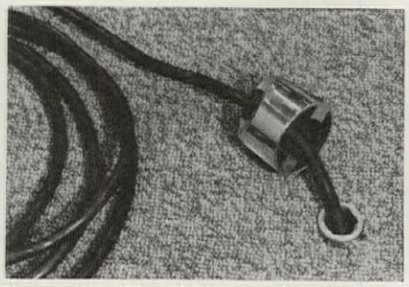
These Header Ducts Make This Cellular Concrete Floor Electrically Alive



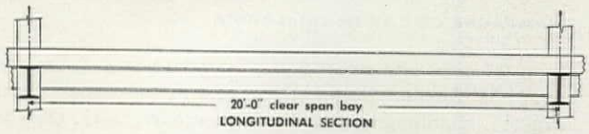
Hollow-cell Flexicore floor with 1½" concrete topping has 3-hour fire rating from national authorities. Needs no fireproofing on ceiling.

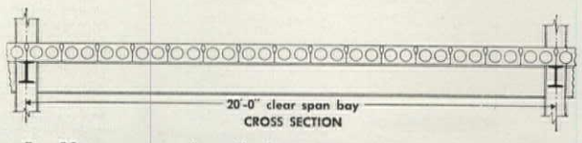


Header ducts install on precast slab floor before topping is poured, and feed into cells in floor. Unlimited electrical distribution is available.



Floor outlets, like telephone outlet above, install quickly at any point above a cell. Electrical fittings manufactured by Conduflor.





Flexicore precast floors permit 20' x 20' clear span bays as shown above. For 32-page manual on Flexicore Electrified Floors write any manufacturer listed below, the Conduflor Corporation, 3338-G Warren Rd., Cleveland, Ohio, or The Flexicore Co., Inc., Dayton 1, Ohio.

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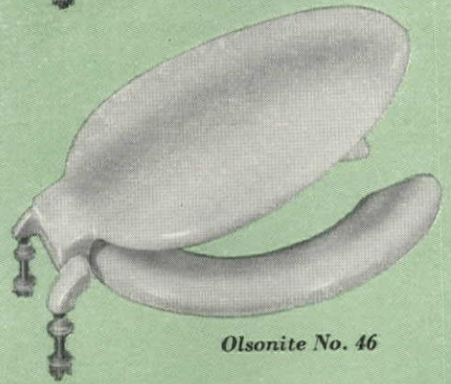
Changing the Skyline of *Dallas*

The New Southland Center... Equipped Throughout with Solid Olsonite Seats

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Olsonite No. 95



Olsonite No. 46

The newest and one of the finest building groups in the South is Dallas' new Southland Center. This $35 million project combines a 42-story office building—Southland Life Tower—an ultra modern 600-room luxury hotel, and a 2,500-car daily capacity underground garage. Foundation provisions have also been made for a future 32-story office building.

Two important features guided the selection of office and hotel appointments: low maintenance and attractiveness. As a result—Olsonite No. 95 white seats were selected for the office building; Olsonite No. 46 white and plain colored seats for the hotel. Both Olsonite models are of one piece construction with no applied finish of any kind. For an Olsonite catalog, please write on your letterhead to:

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ORIGINATORS OF THE SOLID PLASTIC SEAT

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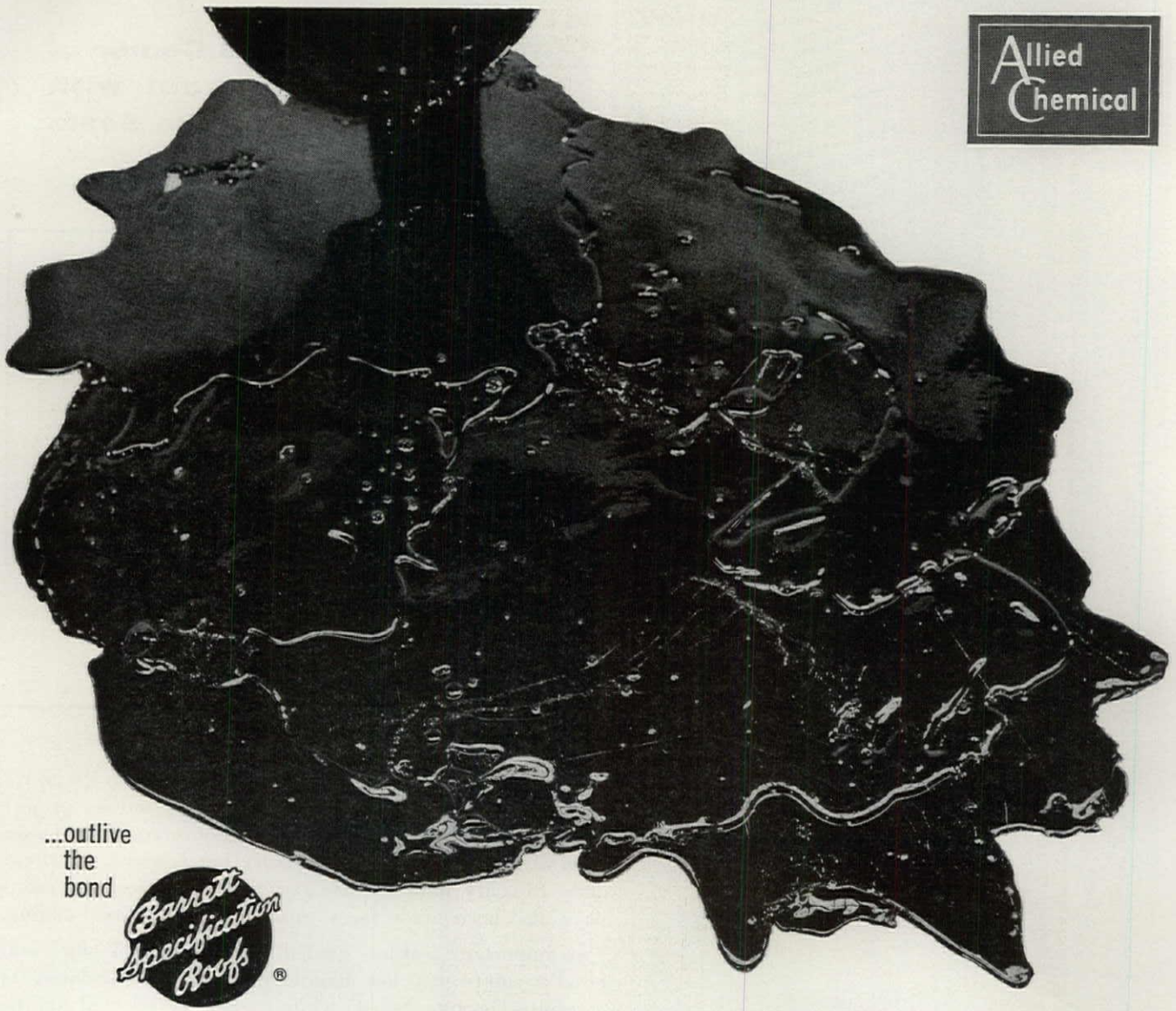
New York's most recent skyscrapers protected by Barrett Roofs

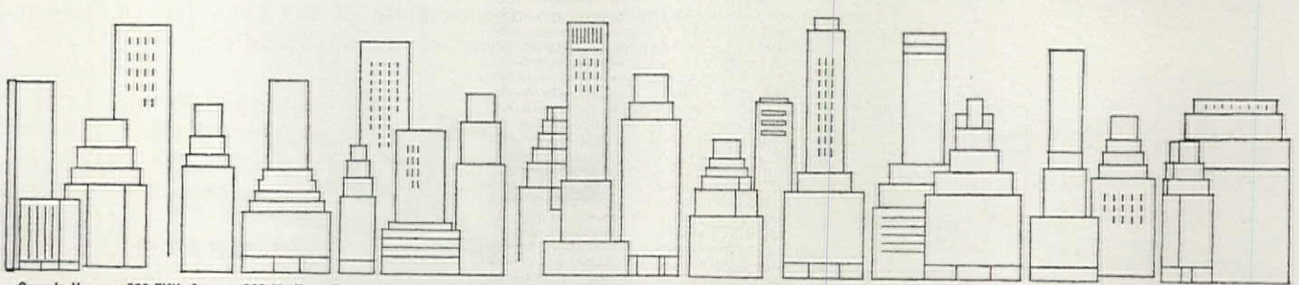
New York City has literally thousands of Barrett Roofs, large and small. Among them are roofs on scores of important postwar buildings, some of which are listed below.

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Laboratory tests show that other bitumens absorb from 2 to 17 times more water than does pitch.

And the established construction standards of the Barrett SPECIFICATION® Roof have been accepted for decades as the roofing criteria of architects and builders throughout the country. BARRETT DIVISION, Allied Chemical Corporation, 40 Rector Street, New York 6, N. Y. In Canada: The Barrett Co. Ltd., 5551 St. Hubert St., Montreal, Que.





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Gropius and Belluschi advise on Grand Central tower design; US architect corrects Khrushchev

To make the world's largest commercial office building "the best building in the world," New York Builder **Erwin Wolfson** decided to enlist the services of "the best architects" obtainable. Last month he announced that, from a list of 50 outstanding designers, he has selected **Walter Gropius** and **Pietro Belluschi** to serve with **Richard Roth**, of the office of Emery Roth & Sons, as a three-man "advisory panel of architects" for the $100 million, 3 million square foot, 50-story Grand Central City that will be erected over the back portion of New York's Grand Central Station starting late next year. An earlier announcement (FORUM, June 1958), named the Roth office as the only architect. Associates of Wolfson, Chairman of Diesel Construction Co., will be **Alfred G. Burger** and **Herbert** and **Stuart Scheftel**.

Grand Central City will mark the Manhattan debut of both Gropius and Belluschi. It also will be the first skyscraper for Gropius. Some changes will be made in the preliminary plans first issued by the Roth office but no change is contemplated in total size. Last month, all three members of this unusual architectural trio fended off questions about ultimate design features as "premature." Gropius told a press conference that thus far he and Belluschi had only had time to look over the site to get ideas on how the building might fit into "the urbanistic whole"—a phrase that a newspaper reporter misinterpreted as "the mystic whole."



WOLFSON, BELLUSCHI, GROPIUS, ROTH; (STANDING) S. AND H. SCHEFTEL



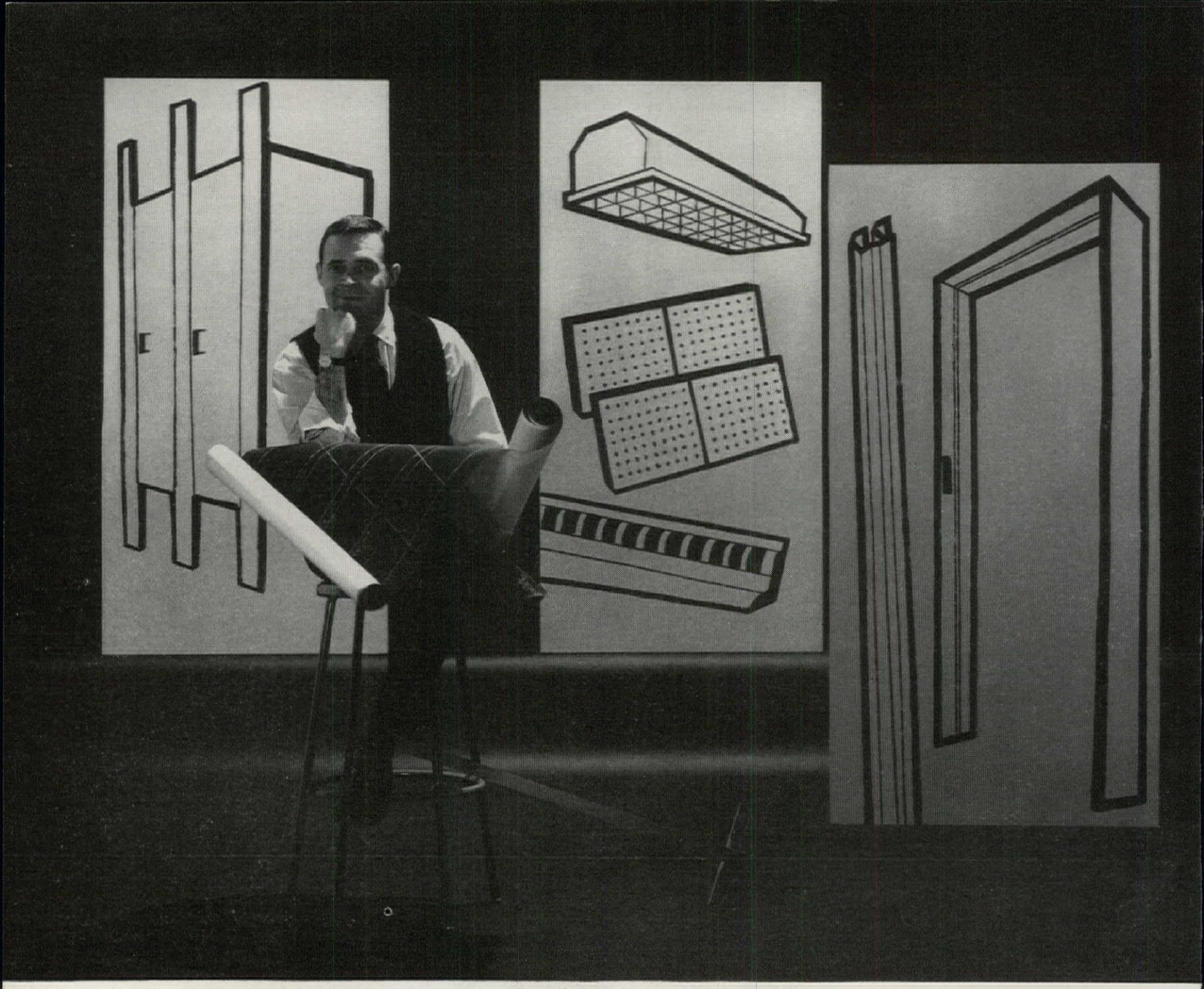
CHURCHILL IN THE KREMLIN

At the Fifth Congress of the International Union of Architects in Moscow a month ago, Architect-Planner **Henry S. Churchill** of Philadelphia deftly parried a question from no less a critic than Soviet Boss **Nikita Khrushchev.** In extemporaneous remarks at a Kremlin reception for Congress delegates, the Russian Premier expressed his dislike for tall buildings and criticized new University of Moscow buildings as too ornate. The cost of maintaining the ornamentation, he feared, would be tremendous. Next Khrushchev expressed his hope that no more skyscrapers would be built in Russia. Elaborating, he said commercial pressure was responsible for the construction of 100-story buildings in the U.S., but this was not necessary in the Soviet Union, because land there is publicly, not privately, owned. To bolster his case, Khrushchev then asked if the U.S. architects did not agree with him? Replying as U.S. delegation chairman, Churchill diplomatically complimented Khrushchev for stating the case against the skyscraper as well as he had ever heard it presented. But he did wish to point out, Churchill added, that no 100-story buildings are being erected in the U.S.

CODE REFORM ADVANCED

After an industrywide Round Table last May on excessive building costs caused by conflicting, arbitrary and archaic building codes, **Henry R. Luce**, Editor-in-Chief of FORUM, HOUSE & HOME and the other Time Inc. publications, took pen in hand. On behalf of the American Institute of Architects, the Building Research Advisory Board, the American Council to Improve Our Neighborhoods (ACTION), the

continued on page 49



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National Association of Real Estate Boards, and ten other industry groups that approved the Round Table's recommendations, Luce wrote to the American Standards Association. The Round Table had shown that code abuses "are adding at least $1,000 to the cost of the average new house built this year, a figure too dramatic and urgent to be ignored," wrote Luce. It had also recommended, he added, that the ASA take action to develop national standard building code requirements applicable to one and two-family residences, and, if practical, extensions to apply to three and four-family residences.

Last month **Lloyd Barron**, chairman of the ASA's construction division, replied that ASA had agreed to consider the feasibility of developing such ASA standards, and invited representatives of all interested organizations to a New York session September 9.

LAND PURCHASE—TEXAS SCALE

"The wealth of the world will always be in the land, and I've never been able to get enough. This time I thought I'd get all I wanted and 100,000 acres seemed a good round figure." Thus Chicago Realtor and Shopping Center Developer **Arthur Rubloff** explained last month his purchase of tracts totalling that amount just a short distance directly east of El Paso, Texas. Rubloff first bought a small property in the area in 1957. He decided to assemble the king size tract after he sent an agent to inspect the first purchase and received a glowing report about prospects for the growth of El Paso. The city's population has increased 45 per cent in the last 15 years, says Rubloff, and its principal expansion is in the direction of his new holdings.

ARCHITECT-PUBLISHER-POLITICO

Undismayed by the prospect of certain defeat in November, ebullient Brooklyn Architect **Vito P. Battista** is campaigning these days for election as Lieutenant Governor of New York as the United Taxpayers Party candidate. A year ago, when he ran for Mayor of New York City on the same ticket, he polled a substantial 67,266 votes, almost one-twentieth as many as victorious Mayor Wagner and the largest vote among three secondary party candidates.

Vocal, versatile, 48-year-old Battista, (from Italy at the age of four and a Brooklyn iceman in his teens) embarked on another new venture last month: publication of a pocket-sized magazine, *Building Industry Data* or *BID*, which will be issued free about six times a year (for local consumption) by the architectural and engineering Institute of Design & Construction, Brooklyn, which Battista founded and directs. *BID* will include a free help wanted and situations wanted section for architectural and construction technicians, and some signed articles on legislation, city planning and other subjects involving construction. Many people in the building industry are often afraid to talk publicly about its problems, says Battista. To offset this, he declares, *BID* intends "to be the 'watchdog' against any unfair or discriminatory tactics of city, state or federal agencies against the building construction industry. We shall be constantly vigilant against bureaucratic attempts to slight or slur the professional architect and building engineer." Busy Battista attended L'Ecole des Beaux-Arts in Fontainebleau, obtained architectural degrees from Carnegie Tech (where he won the Hornbostel Prize) and MIT. He served as an architect and planner in the New York City Public Works Department for seven years and was a co-designer for the $100 million Brooklyn Civic Center.

WALTER DARAN



BATTISTA

NEW JOBS AND AWARDS

A practicing architect will be the new dean of the University of Oregon School of Architecture and Allied Arts when its new term begins this month. He is **Walter L. Gordon**, of Portland, Oregon, who worked there as a designer with **Pietro Belluschi** from 1940 to 1946, and since then has headed his own office. From 1936 to 1939 Gordon was curator of the San Francisco Art Museum.

Elected as president of the San Francisco Art Association: **John Bolles**, a prominent local architect. END

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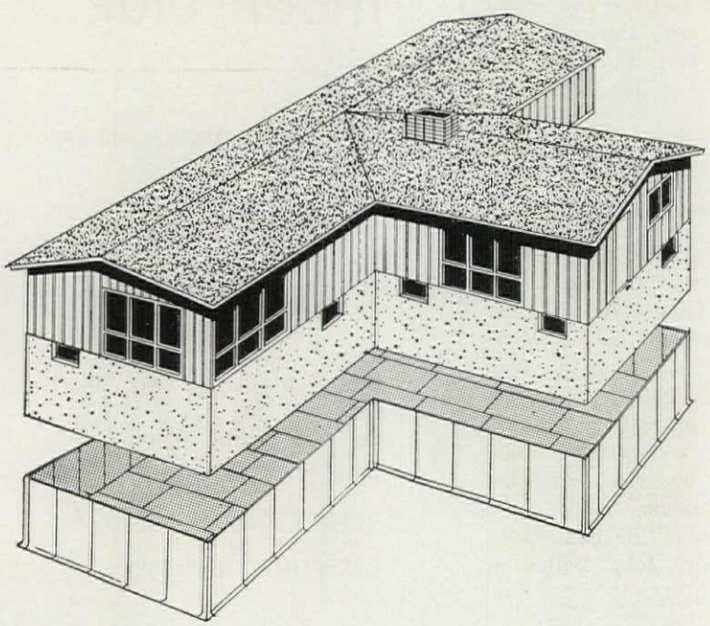
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MATERIAL	WATER VAPOR TRANSMISSION (in *Perms)	
	LOW	HIGH
Sealtight "PREMOULDED MEMBRANE"	.0066	.0066
Polyethylene Film (.004 in. thick)	.097	.108
55-pounds roll roofing	.030	.081
Duplex paper (coated both sides—reflectors material, reinforced)	.304	.347

*Perms—grains per square foot per hour per inch of mercury difference in vapor pressure at standard test condition.

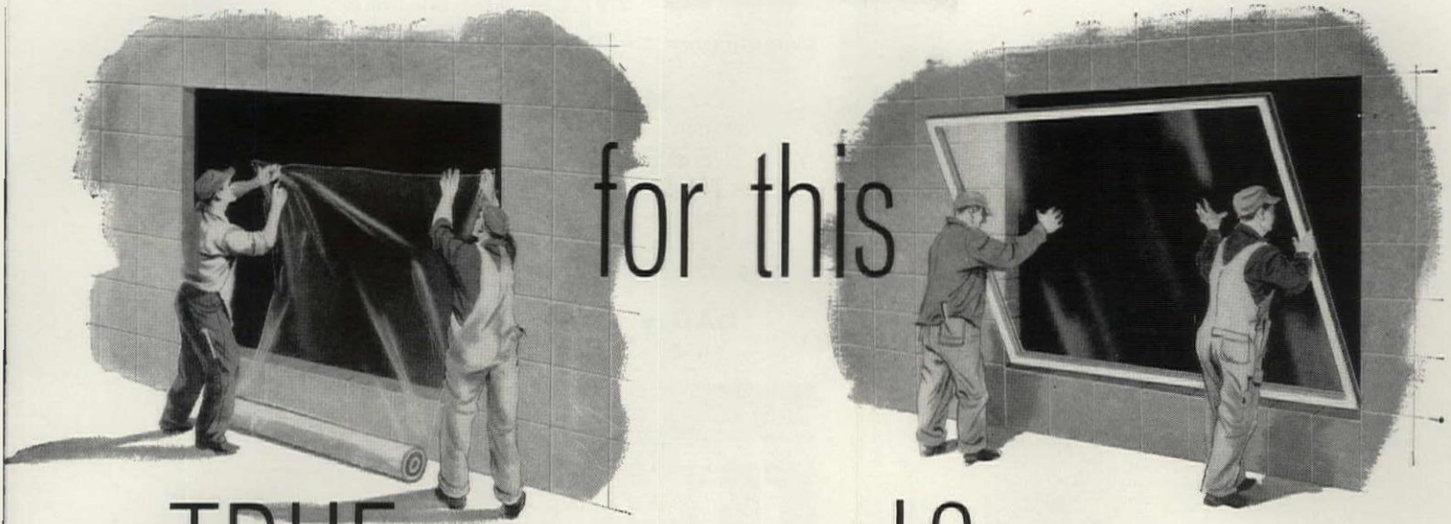


COMPARE the strength . . . "PREMOULDED MEMBRANE" is strong enough to maintain its permeance rating after it has been subjected to the pouring of aggregate, trundling of wheelbarrows and installation foot traffic. Resists rupturing and tearing. How many other materials will perform like this under the above circumstances?

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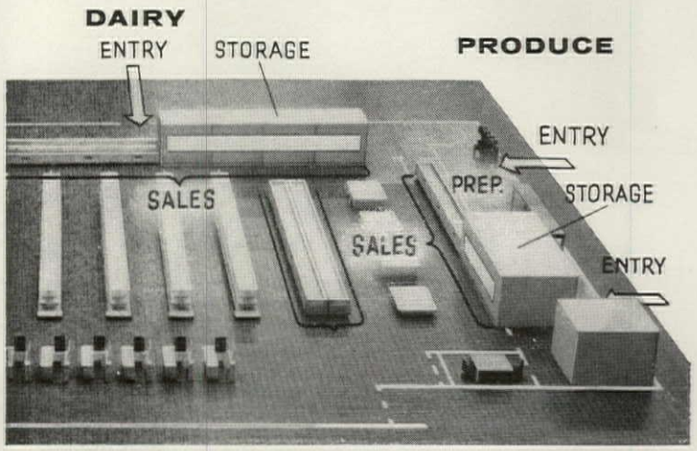
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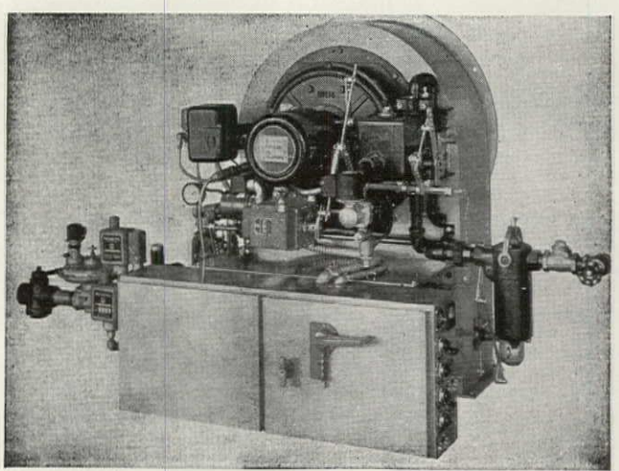
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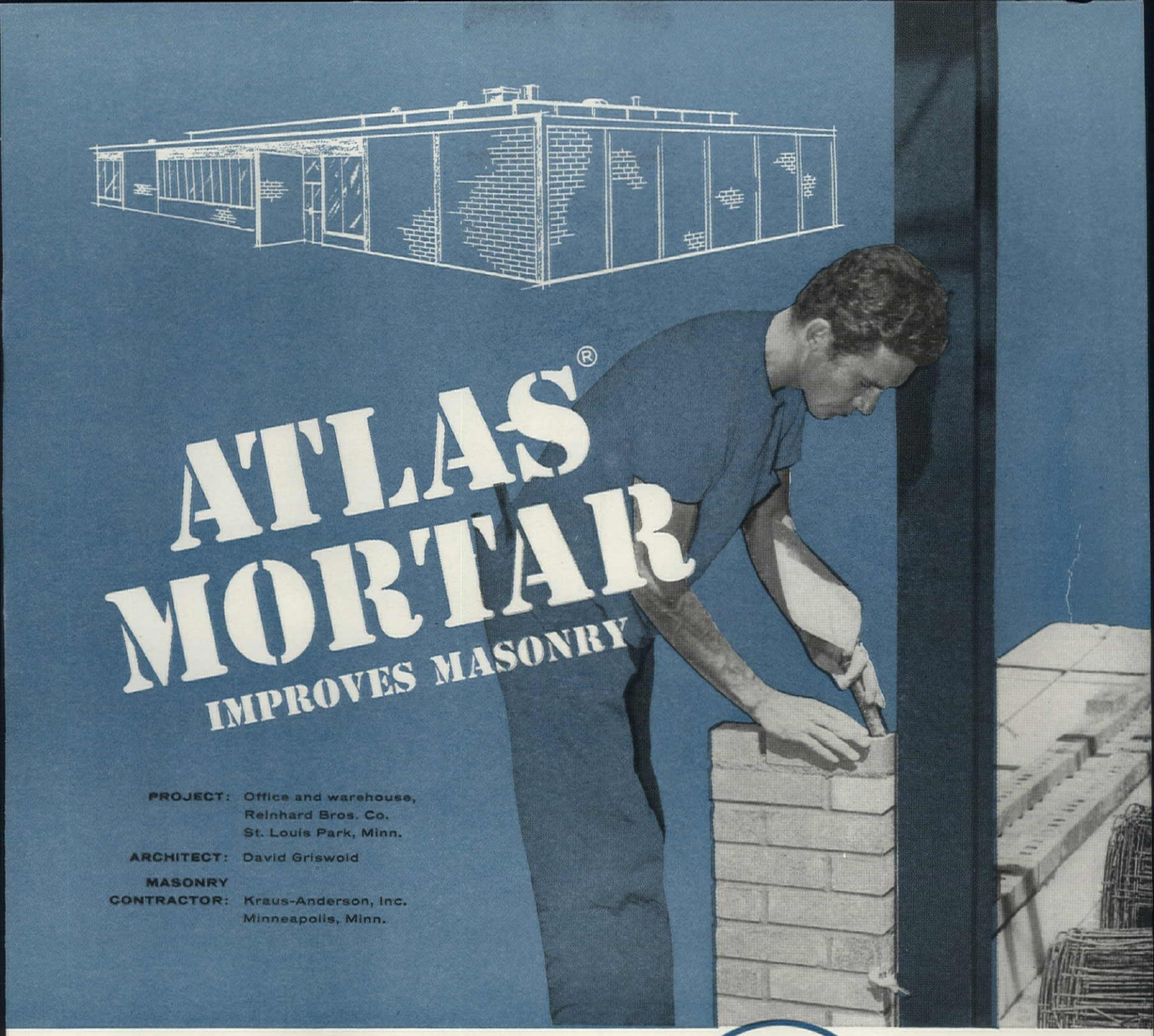
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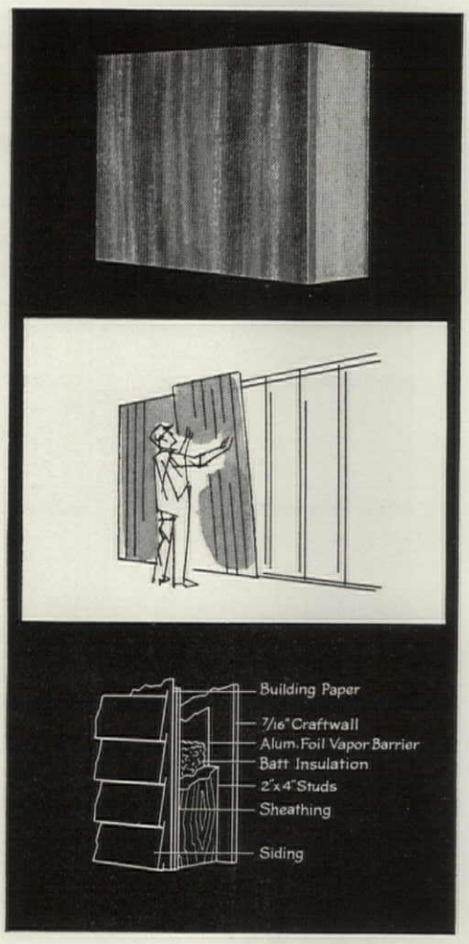
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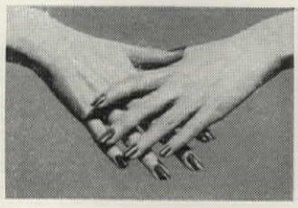
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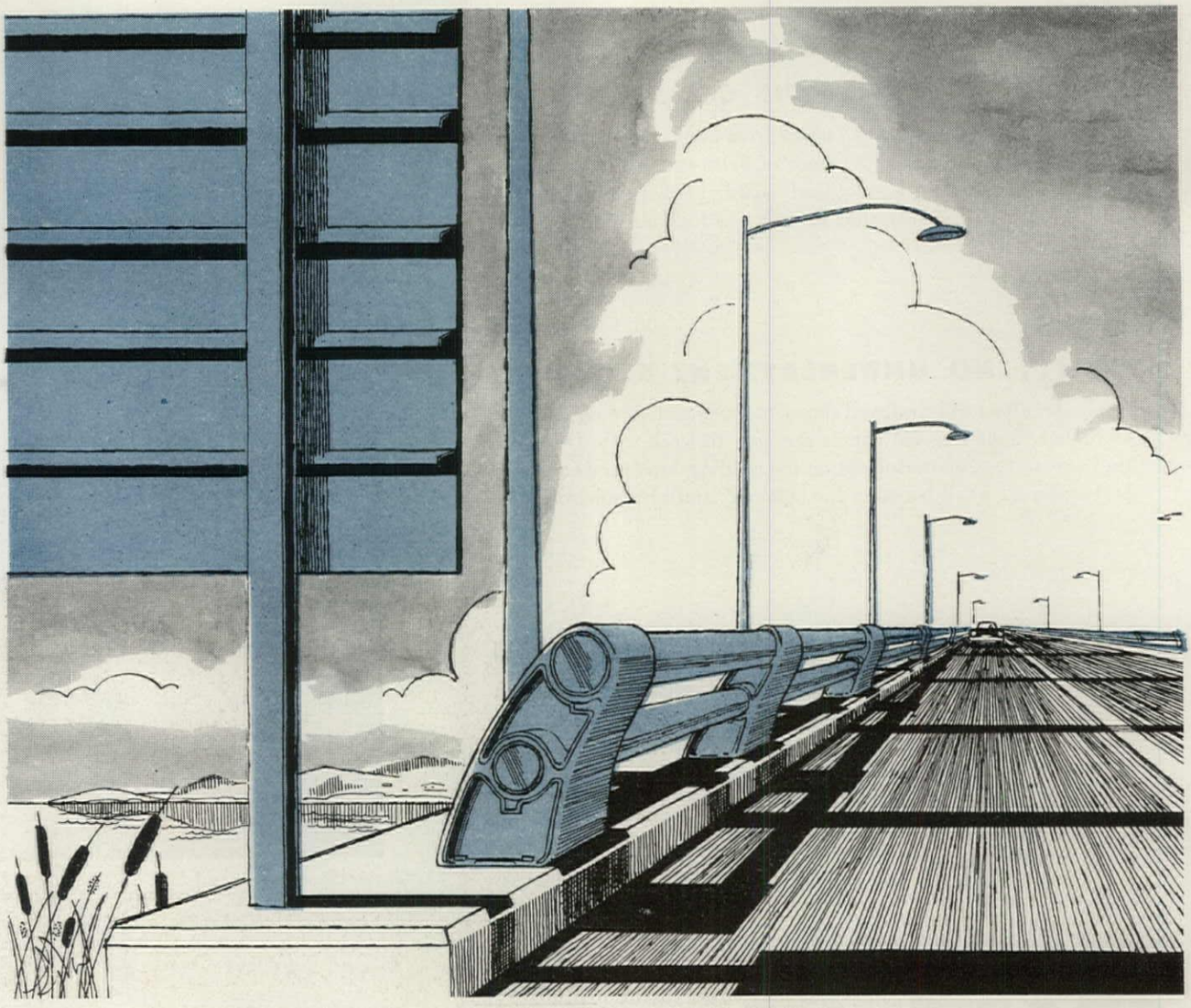
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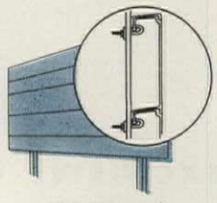
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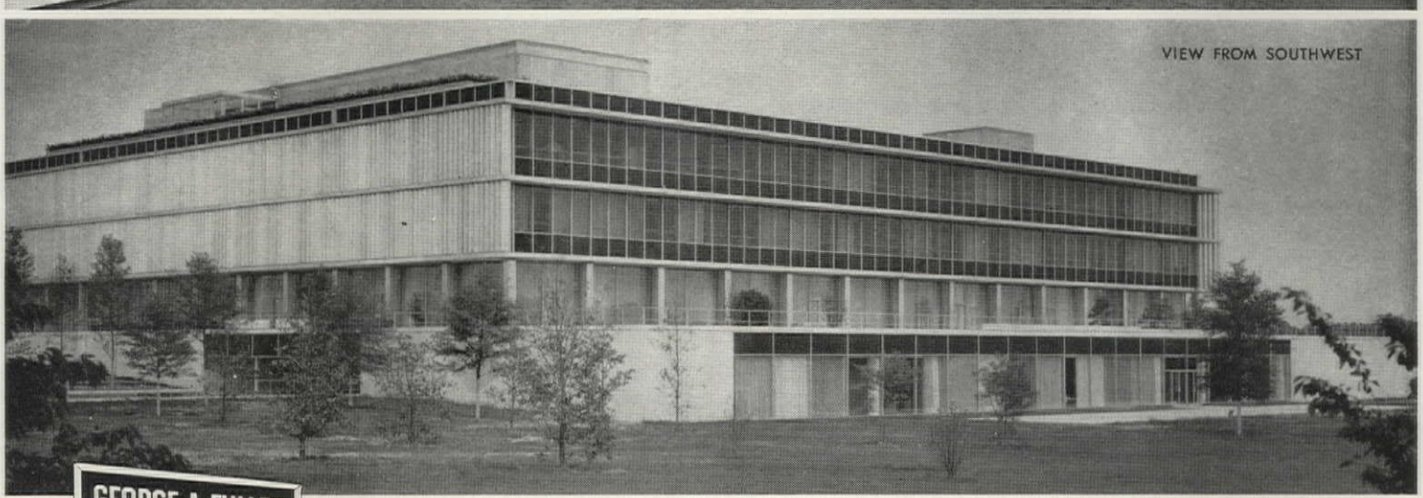
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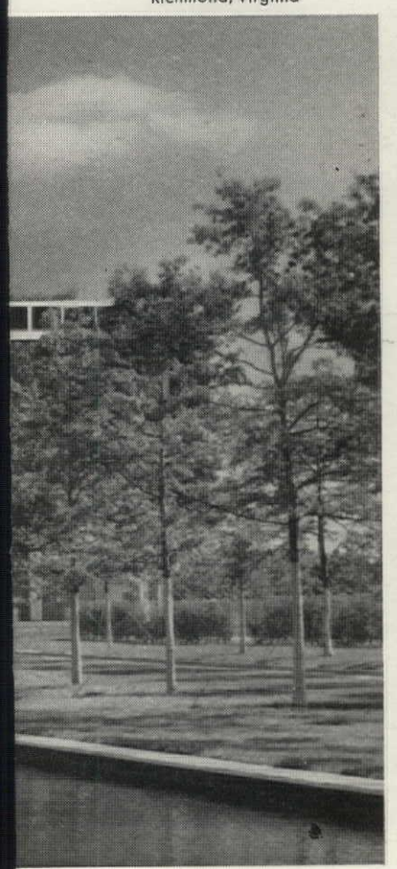
ARCHITECTS: Skidmore, Owings & Merrill • GENERAL CONTRACTOR: George A. Fuller Co.



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Photo by Dementi, Richmond, Virginia



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Clear anodized sheet aluminum soffit panels resist the weather, provide lasting beauty.

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Aluminum panels in many baked-enamel colors... set in extruded frames anodized silver-grey and black.

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INTERIOR DOORS

Aluminum sheet on filler cores... light to open... brilliantly colorful in baked-enamel finishes.

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Cast, extruded, machined... all kinds of aluminum hardware produced by many different methods. No tarnishing, no polishing!

WALL TILE

No chipping, no spalling, no cracking, with enamel finished aluminum wall tile. Extruded aluminum baseboards in matching colors.

SADDLES

Extruded aluminum. Easy to cut and fit. Easy to clean. Resist scuffing.

HONEYCOMB CEILINGS

"Egg-crate" formed of aluminum... reduces noise level, provides air conditioning plenum chamber and diffuses light as well as conditioned air. In white baked-enamel finish.

ACOUSTICAL CEILINGS

Same benefits as honeycomb ceilings but placed in some areas for much greater noise reduction. Provide easy access to utilities above.

LIGHTING FIXTURES

Utilizing aluminum's high reflectivity for visible light—and its ultra-modern appearance.

BASEBOARDS AND TRIM

Clear anodized aluminum extrusions... economical, clean and modern looking, never stain.

ROLLING GARAGE DOORS

The light weight of interlocking aluminum extrusions increases efficiency of motor-powered doors of executive garage. Natural finish.

CONTROL PANEL

World's first giant control board built of aluminum, this custom-built panel gives building engineers fingertip control over heating and air-conditioning.

GUARD RAILS

Oval aluminum tubing with clear anodized finish protects glass wall panels from inside.

SHELVING

Formed sheet aluminum in a natural finish... provides clean appearance for exposed shelving.

SUN SHADE STANDS

Sun decks and roof garden are cooler, more pleasant... thanks to the sun shades on readily portable aluminum stands.

CANOPY ROOFING

Aluminum roof deck is used for all canopy roofs. The visible topping is black marble chips.

FLAGPOLES

Seamless cold-drawn aluminum, cone-tapered and satin finished... 82½' long, 75' above ground. An end to flagpole painting!

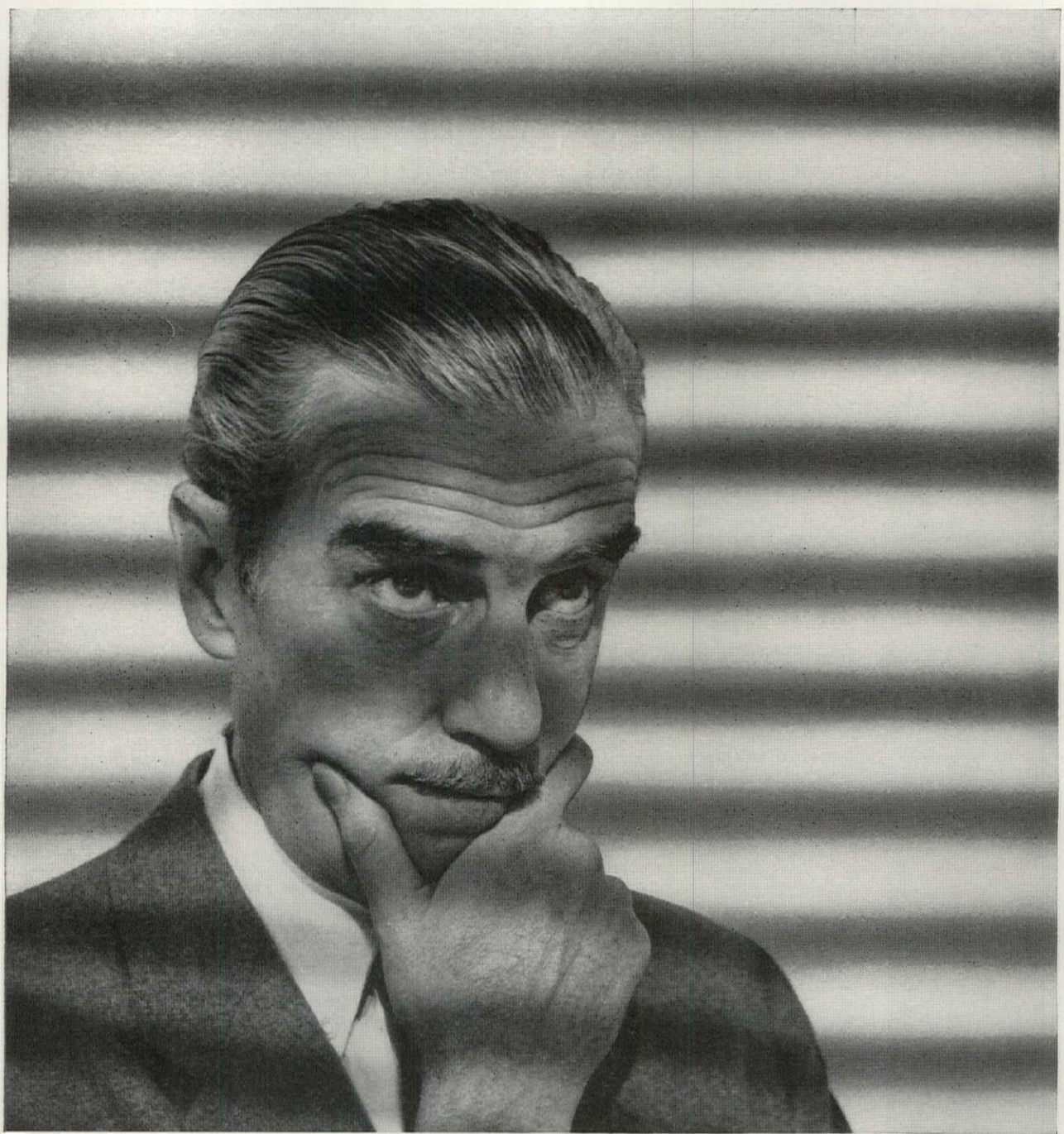
CHAIN LINK FENCE

Rustproof enclosure for the entire landscaped grounds ... complete with aluminum posts and hardware.

OTHER ALUMINUM APPLICATIONS

Among the many other aluminum applications are desks, chairs and other furniture; desk accessories; draperies, rugs and upholstery featuring Reynolds Aluminum yarn; radiator grilles; portable sprinkler irrigation.

ALUMINUM



Don't let "hodgepodge" blinds cast a shadow on any job of yours!

Because all venetian blinds are assembled locally, there's always the risk of getting blinds that are assembled from a *hodgepodge* of components. This can cause operating malfunctions, light leaks, and service maintenance problems. That's why it's important to specify "Flexalum Twi-Nighter venetian blinds." This is the blind that assures tighter closure (a must for direct sun exposures), longer life and less care. The Flexalum Twi-Nighter is the only blind where *every component, including raw materials, is made by one manufacturer.* And it is assembled locally *only* by licensed Flexalum Manufacturers under strict Hunter Douglas quality control. Protect yourself *and* your clients.



SPECIAL FLEXALUM TWI-NIGHTERS USED THROUGHOUT THE SEAGRAM BUILDING. To achieve a uniform appearance from the exterior, two custom devices were engineered: 1) a 3-position stop on the lift mechanism; and 2) a control to limit the tilt-angle.

Flexalum TWI-NIGHTER® VENETIAN BLINDS

Hunter Douglas Aluminum Division of Bridgeport Brass Company, 405 Lexington Ave., N.Y. 17.



from earliest planning stages to occupied building, SPECIFY and USE

BAYLEY

STEEL and ALUMINUM

Windows and Curtain Walls

Save time and avoid the cost of reworking plans by letting "experienced hands" take care of windows and curtain wall needs *right from the start.*

When is "right from the start"? It is, *when you first consider the part windows and curtain walls are going to play in your building plans.*



Bayley offers *pre-engineered* wall treatments that let *your* plans range from conservatively modern to strikingly different.

Backed by years of highly effective co-operation with architects and engineers, Bayley's development of many of today's most advanced curtain-wall systems and improvements began *over 30 years ago.* And, *for three quarters of a century,* Bayley has been strengthening its reputation for responsibility you can count on, from initial planning to occupied building.

The *earlier* you put Bayley's *extra services* to work for you, the more certain you are of getting *what* you want in the way of a wall that is soundly built, permanent, *and lastingly beautiful.* Call your local Bayley representative any time.

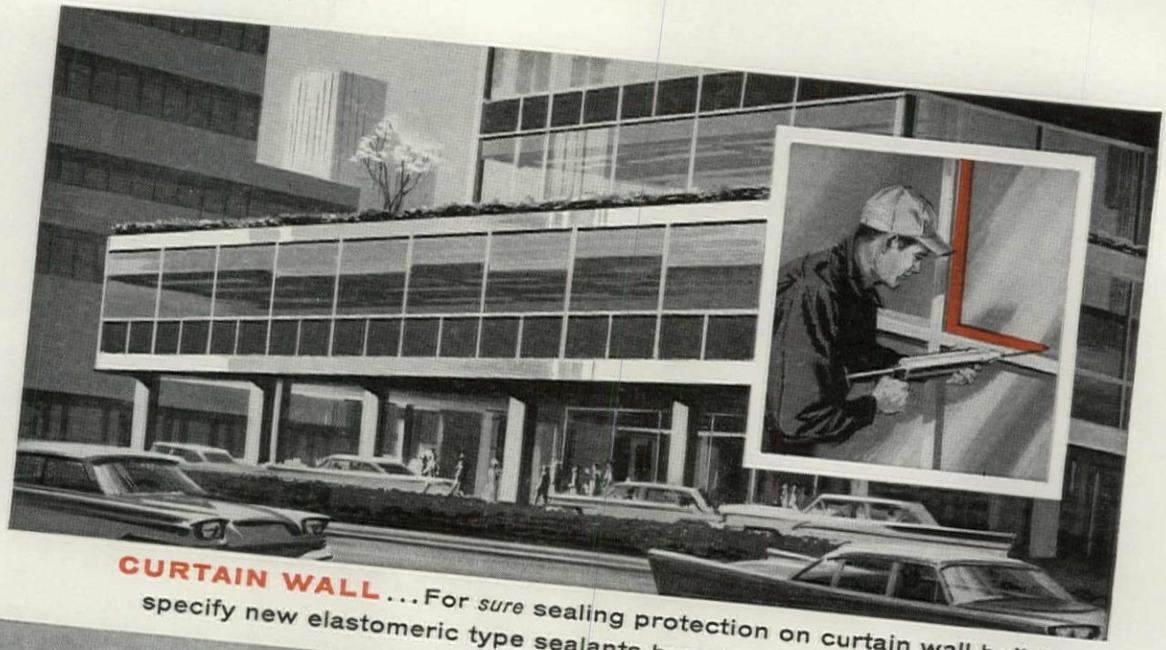
See Sweet's Files (Architectural or Industrial Construction) or send for personal copies of the following Bayley catalogs: **Aluminum Windows, Steel Windows and Doors, Curtain Wall Systems, Guard Window Detention Systems.**



The WILLIAM BAYLEY Co.
Springfield, Ohio

District Sales Offices:
Springfield • Chicago 2 • New York 17 • Washington 16

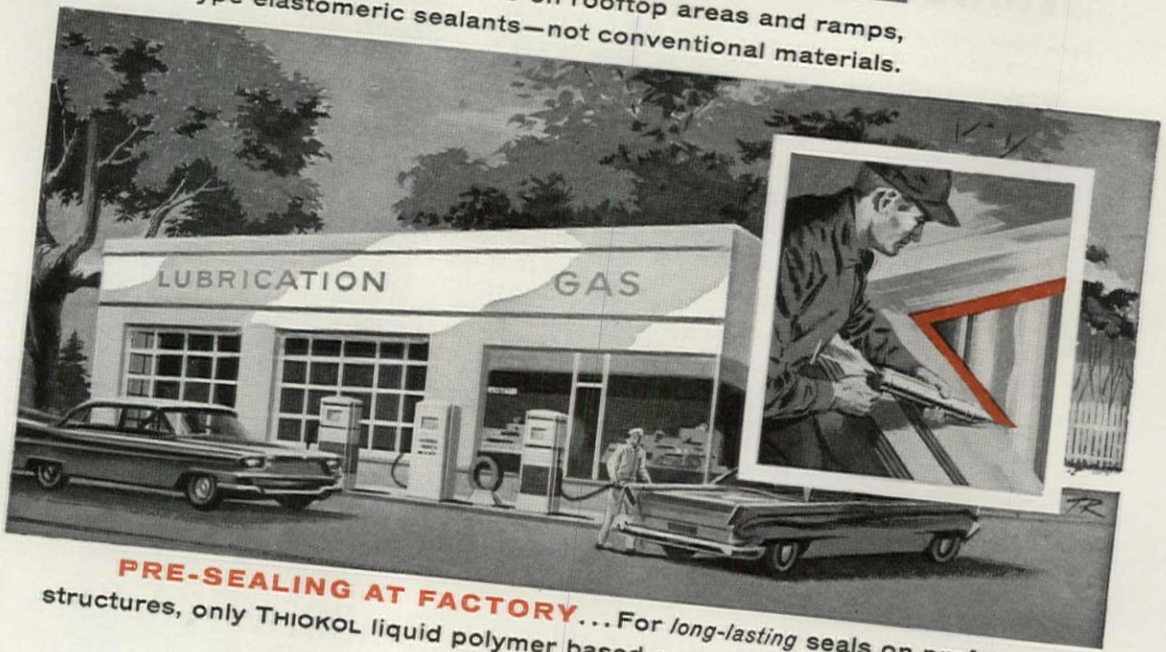
ORIGINATORS • DESIGNERS • MANUFACTURERS • INSTALLERS



CURTAIN WALL... For *sure* sealing protection on curtain wall buildings, specify new elastomeric type sealants based on THIOKOL liquid polymers.



ROOFTOP... If you want *weather-defying* seals on rooftop areas and ramps, specify modern polysulfide type elastomeric sealants—not conventional materials.



PRE-SEALING AT FACTORY... For *long-lasting* seals on prefabricated structures, only THIOKOL liquid polymer based sealants will do an all-around job.

When you want a building sealed... against movement and weathering... specify

Thiokol polysulfide type elastomeric sealants

ELASTOMERIC-TYPE sealants based on THIOKOL liquid polymers are solving a wide variety of sealing problems in applications where ordinary caulking compounds have proven inadequate.

In curtain wall structures, for instance, the severe stress and strain exerted on expansion joints and copings are too extensive for conventional caulking materials. Polysulfide type elastomeric sealants, however, will withstand these strains with ease—and also provide resistance to wind, rain, weather and ozone.

Not only do they effectively adhere to glass, aluminum, porcelain, enamel, or any other building materials, but they also provide a seal for sure protection against buffeting winds. As a matter of fact, THIOKOL liquid polymer based sealants last so many years longer than conventional compounds, that they bring about reductions in the cost of curtain wall maintenance.

Thiokol®

CHEMICAL CORPORATION

®Registered trademark of the Thiokol Chemical Corporation for its liquid polymers, rocket propellants, plasticizers and other chemical products.

Highly Resistant to Oils and Solvents

Elastomeric sealants are also ideal for sealing joints in masonry and tile and other materials. They are extremely resistant to petroleum oils, solvents and gases. Their flexibility can be adjusted to meet specific applications.

Easily Applied at Ambient Temperatures

Because new thixotropic polysulfide type sealants can be cured at ambient temperatures and applied in a smooth flowing manner, they are especially appealing to manufacturers of prefabricated structures, gas stations, supermarkets, shopping centers, and even complete multi-building units. In fact, modern elastomeric sealants based on THIOKOL liquid polymers are becoming a necessity for *any* building application where exceptionally long-lasting, weather-defying seals are required.

FOR MORE INFORMATION:

Mail coupon to Dept. 32, Thiokol Chemical Corp., 780 N. Clinton Ave., Trenton 7, New Jersey. In Canada: Naugatuck Chemicals Division, Dominion Rubber Co., Elmira, Ontario.

Gentlemen: Please send me further details about elastomeric-type sealants based on THIOKOL liquid polymers.

Firm_____

Street_____

City_____ State_____

Your Name_____



This unusually decorative fabric was selected by William Cramp Scheetz, Jr., A.I.A., as a special design for Alan Wood Steel Company—oldest integrated steel mill in America.

New twist by Thorp custom-woven fabrics. Unusual weaves, textures and infinite colors from Thorp make any interior dramatically expressive. For the most exacting client's office, school, hospital, hotel or motel, choose Thorp, the fabrics that go everywhere.

MEMBER OF fine fabric bounces

Thorp

FROM A WORLD OF FINE FABRICS

J.H. THORP & CO., INC., THE DECORATOR'S MART, 425 EAST 53rd ST., MID-TOWN SHOWROOM, 41 EAST 57th ST., NEW YORK • BOSTON • PHILADELPHIA • CHICAGO • MINNEAPOLIS • DALLAS • LOS ANGELES • SAN FRANCISCO



Call the man from Fenestra for

Office doors at the lowest installed cost!

Business-like in appearance and durability, too! These new Fenestra® Hollow Metal Doors swing open smoothly, close quietly. There's "quiet", built into every Fenestra door. You save year after year on maintenance because Fenestra Doors can't warp, swell, stick or splinter. They last a lifetime! And in addition, you get the lowest installed cost because:

1. You buy a *complete package*—door, frame, hardware, completely machined at the factory to eliminate on-the-job cutting and fitting.

2. Erection is fast—one man with a screw driver can install a door in minutes.

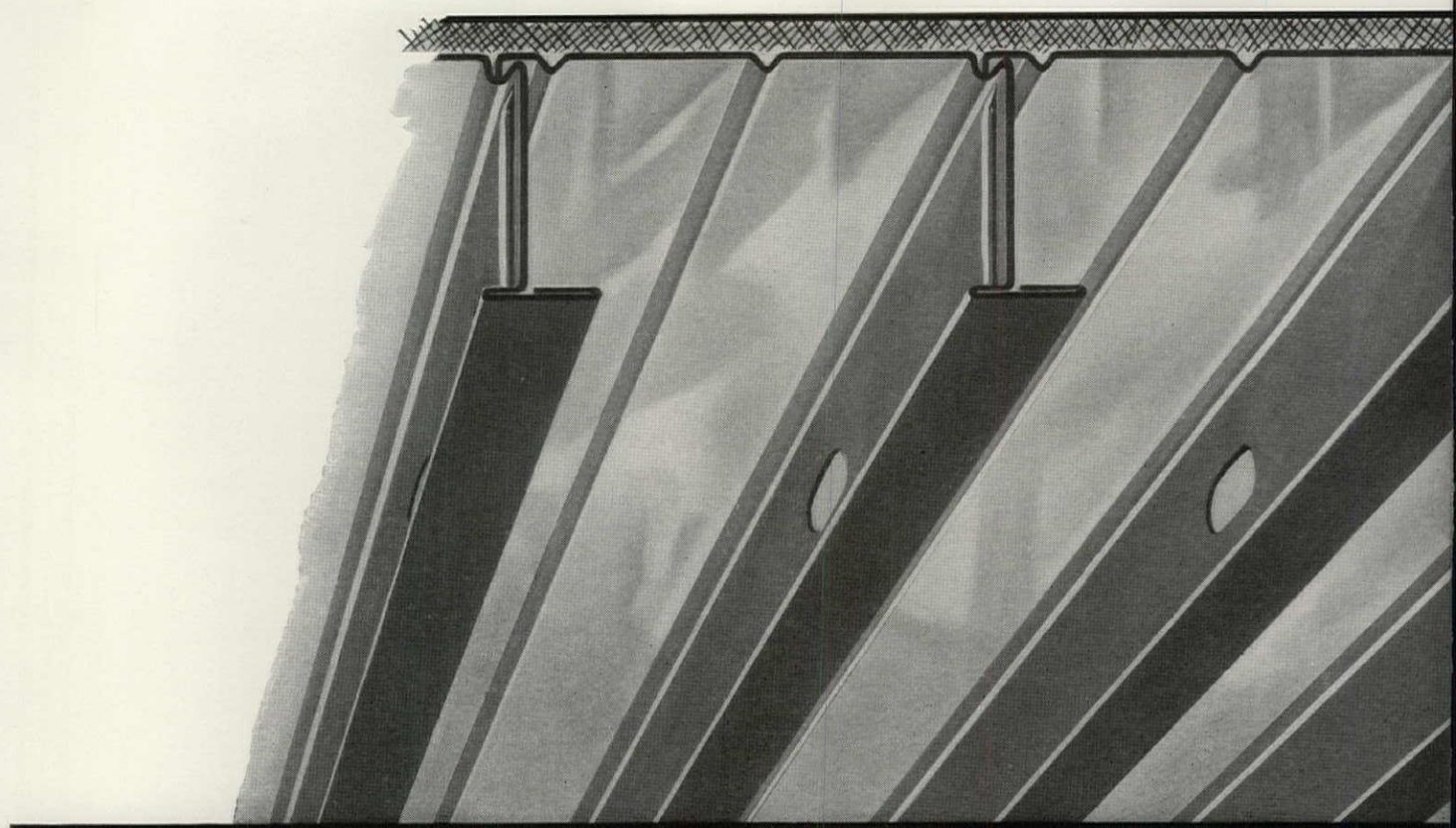
3. You have a complete selection of door types (1⅜" and 1¾") of distinctive designs and features—*all mass produced*. Custom quality at stock door prices!

Ask your Fenestra-trained representative (listed in the Yellow Pages) to help you in your selection and specification of doors, frames and hardware. Or, write to Fenestra Incorporated, Dept. AF-9, 2296 East Grand Boulevard, Detroit 11, Michigan.

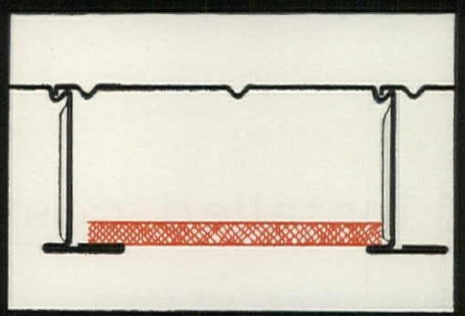
Let the man  *from Fenestra be your "door man"*

Fenestra HOLLOW METAL DOOR FRAME • HARDWARE UNITS

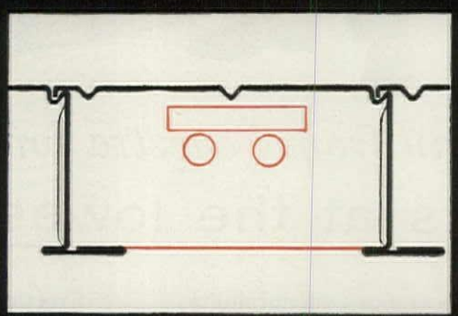
YOUR SINGLE SOURCE OF SUPPLY FOR DOORS • WINDOWS • BUILDING PANELS • CURTAIN WALLS



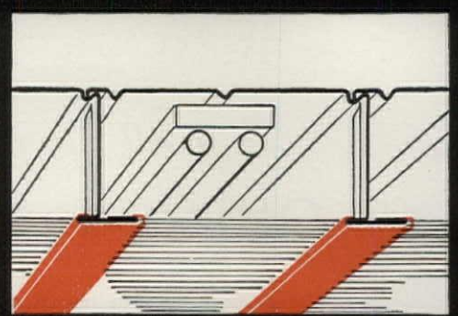
Any 12" standard acoustical tile easily installed, without trimming.



Recessed fluorescent fixtures and diffusing elements are rapidly installed.



Colored plastic cover strips available for bottom flanges of roof deck—giving decorative finished ceiling effect.



Spans up to 32 feet.
Available in 4½", 6" and 7½" depths;
14, 16 and 18 gauges.

Fenestra

INCORPORATED



Announcing...

Fast Flexible "Fentura"..*roof system*

by Fenestra®

The new "FENTURA" Roof System provides a long-span structural roof with unusual adaptability, at lower-than-ever costs. It is based on Fenestra's new "LS" (long-span) deck.

"LS" deck's unique design provides exceptional strength-weight economy. It spans to 32 feet, with longer lengths available for overhangs, double-span conditions and similar extension needs. "LS" deck also provides lateral bracing for the structural frame.

The system allows almost any ceiling treatment. The deck can be left exposed for industrial applications: warehouses, canopies, loading docks, or finished with recessed lights and acoustical tiles for schools, offices and similar structures. Ceiling tile can be easily removed to change lighting and utility systems as needed.

For details, call your Fenestra representative listed in the Yellow Pages or write Fenestra Inc., Dept. AF-9, 2296 E. Grand Blvd., Detroit 11, Mich.

Your single source of supply for BUILDING PANELS • CURTAIN WALLS • DOORS • WINDOWS



Fitting under low windows, induction UniTrane units in custom-built cabinets flow smoothly into lines of the room.

New Illuminating Bldg. in Cleveland chooses all-Trane induction air system!



From 2,000 tons of refrigeration to 1,500 induction air units . . . from heating coils to giant primary air fans . . . the air conditioning equipment for Cleveland's new Illuminating Building is TRANE—all TRANE.

As such, all parts of the system are *partners*—built together to work together—for efficiency, economy, for ease in meeting modern design requirements.

Take the induction UniTrane units that cool or heat the 22-story building's perimeter. In their custom-built cabinets, they can be shifted anywhere between the columns where primary air risers are located. To move partitions is easier, future tenant changes less costly.

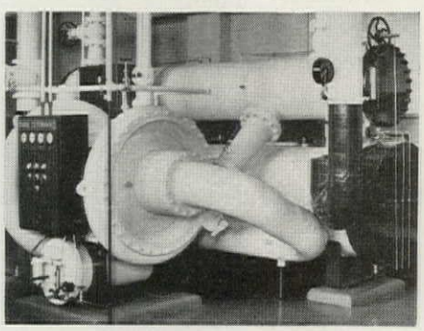
Take the Climate Changers which condition interior zones of the Illuminating Building. These are compact, factory-assembled air handlers in a wide variety of models and capacities.

Or take the CenTraVacs which provide cooling for the system. Here, they're located in the basement. In another building, you could put them on another floor or the roof—because they're basically so compact, quiet and vibration-free.

For any air conditioning problem, any system, turn to TRANE for equipment that's matched to your needs, matched to work together.

Want more facts? See your nearest TRANE Sales Office or write TRANE, La Crosse, Wis.

Low cost cooling at any load is provided by two TRANE CenTraVacs. America's foremost hermetic centrifugal compressors, they automatically adjust power use in almost direct proportion to cooling load from 100% down to 10% of capacity.

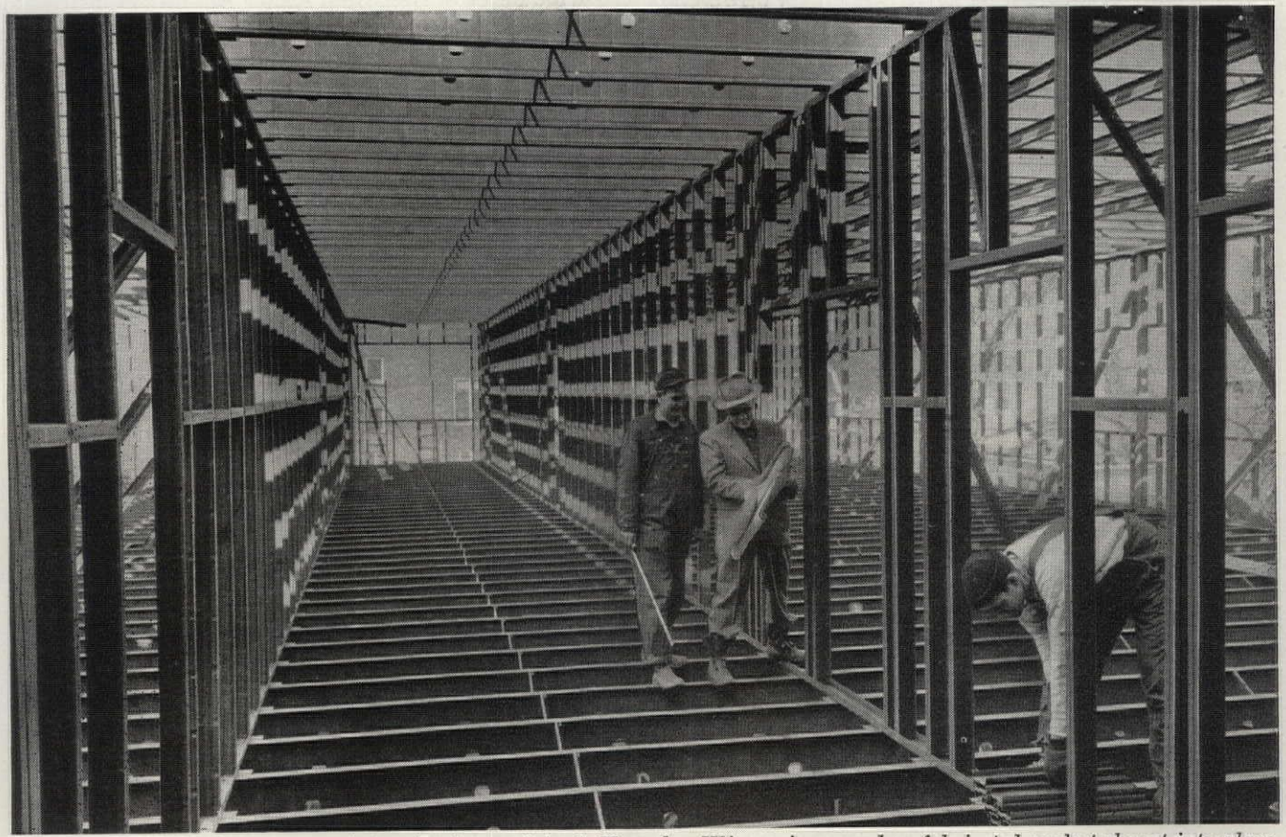


For any air condition, turn to

TRANE

MANUFACTURING ENGINEERS OF AIR CONDITIONING, HEATING, VENTILATING AND HEAT TRANSFER EQUIPMENT

THE TRANE COMPANY, LA CROSSE, WIS. • SCRANTON MFG. DIV., SCRANTON, PA.
CLARKSVILLE MFG. DIV., CLARKSVILLE, TENN. • TRANE COMPANY OF CANADA, LIMITED, TORONTO • 97 U.S. AND 19 CANADIAN OFFICES



Much of the framing for Friedens Lutheran School, Kenosha, Wisconsin, was shop fabricated ready to be set into place.

With Stran-Steel framing—

KENOSHA SCHOOL GOES UP FAST TO SAVE COSTS

In less than 1,600 man-hours, the 8-room addition to Friedens Lutheran School, Kenosha, Wisconsin, was closed in, ready for interior finishing, according to architect Walter Trapp, A.I.A.

"We selected Stran-Steel nailable joists, studs and wide flange beams partly because of flexibility, but principally because of speed of erection," Mr. Trapp states, "for fast erection means savings many ways. For instance, we can fasten channel runners directly to the joists. Then acoustical ceiling panels just snap into place. It's really easy and saves a lot. And by using the Stran-Steel lightweight framing system we were able to reduce foundation material and labor costs at least 20 percent."

With a Stran-Steel building system you can stay ahead of construction crews by shop fabricating sections and delivering them to the site as needed. At the Friedens School all the non-bearing walls were pre-fabricated and dropped into place as the floors were completed. Plumbing and electrical work is simplified, too, because joists and studs are punched to receive piping and wiring.

Save your clients money by saving construction time. All-steel Stran-Steel components are easy to handle, easy to use. Structures go up fast. And the job you build with a Stran-Steel framing system is durable, fire-safe and flexible in design. Send the coupon for more facts.



Stran-Satin curtain walls helped speed erection of this 8-room addition to Friedens School.

Stran-Steel Architectural Products Mean Construction Savings For You



JOISTS and STUDS BEAMS ROOF DECK C-SECTIONS COLUMNS CHANNELS

Dept. 23-51

STRAN-STEEL CORPORATION

Detroit 29, Michigan • Division of

NATIONAL STEEL CORPORATION

Stran-Steel Corporation, Dept. 23-51
Detroit 29, Michigan

Please send your Architectural Products Catalogs.

Name_____

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Firm_____

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NEW ARCHITECTURAL ALUMINUM EXTRUSIONS FOR CONTEMPORARY DESIGNS

. . . now readily available from Kaiser Aluminum distributors

This Metals Service Center for Copper & Brass Sales, Inc. demonstrates an effective use of new Kaiser Aluminum architectural extrusions in contemporary design.

In addition to the gravel stop, facing system and window sill used on this project, Kaiser Aluminum offers a complete line of extrusion products engineered for the functional requirements of today's architecture.

Included in the line are a variety of gravel stops, copings, window sills, thresholds, and handrails as well as fascia expanders, fascia system, architectural and structural shapes, rod, bar, pipe and tube. All are now readily available in a wide range of sizes from Kaiser Aluminum distributors.

Investigate the advantages these lightweight architectural extrusions offer for your designs. Natural corrosion resistance assures permanent beauty, minimum maintenance.

For more information and complete architectural specifications on any or all of these products, contact the Architect's Service Representative at the Kaiser Aluminum sales office listed in your telephone directory. Or write: Architect's Service Department, Kaiser Aluminum & Chemical Sales, Inc., 919 N. Michigan Ave., Chicago 11, Ill.

Kaiser Aluminum & Chemical Sales, Inc., *General Sales Office,* Palmolive Bldg., Chicago 11, Ill.; *Executive Office,* Kaiser Bldg., Oakland 12, Calif.

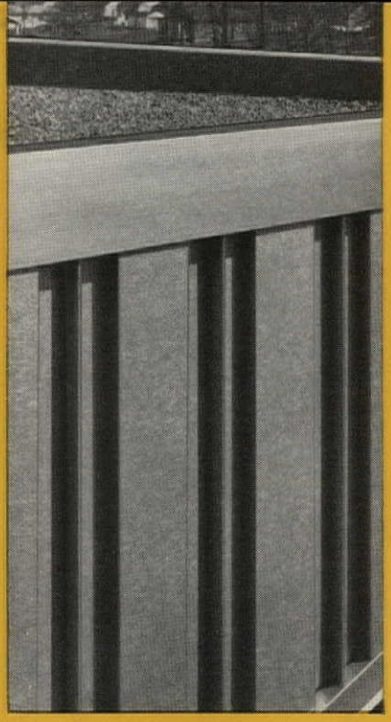


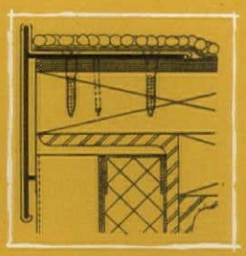
KAISER ALUMINUM

What the architect conceives . aluminum achieves!

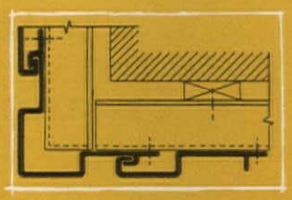
See "MAVERICK" • Sunday Evenings, ABC-TV Network • Consult your local TV listing



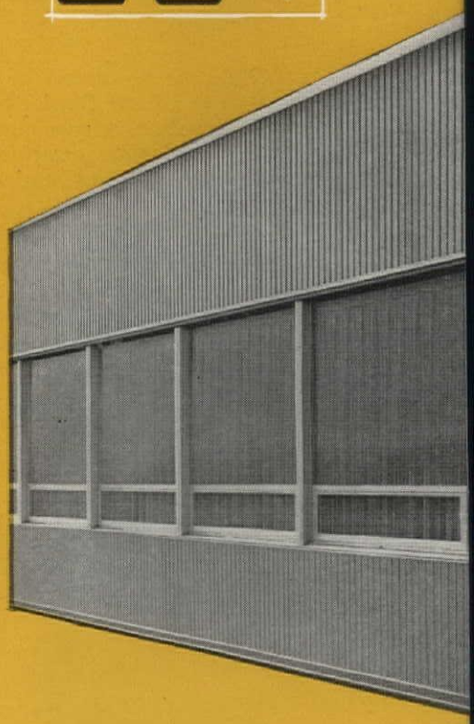




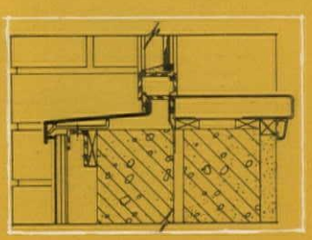
Typical detail and photo of Kaiser Aluminum's Type K-1 Gravel Stop. Note simplicity and pleasing shadow line that results from the straight drip edge feature.



Kaiser Aluminum's standard Facing System may be used for interior or exterior applications. Typical detail shows outside corner components in horizontal section. Photo shows pleasing texture effect of the configuration.



The straight drip edge feature of Kaiser Aluminum's Type K-1 Window Sill is shown in typical detail and photo. As in the Type K-1 Gravel Stop, this feature contributes to the structure's contemporary design. Standard sill widths range from 2⅛" up to 8¼" plus ⅜" drip overhang.



ENGINEERS AND ARCHITECTS:
Giffels & Vallet, Inc., L. Rossetti

CURTAIN WALL FABRICATOR-ERECTOR:
The R. C. Mahon Co.

GENERAL CONTRACTOR:
Perron Construction Co.

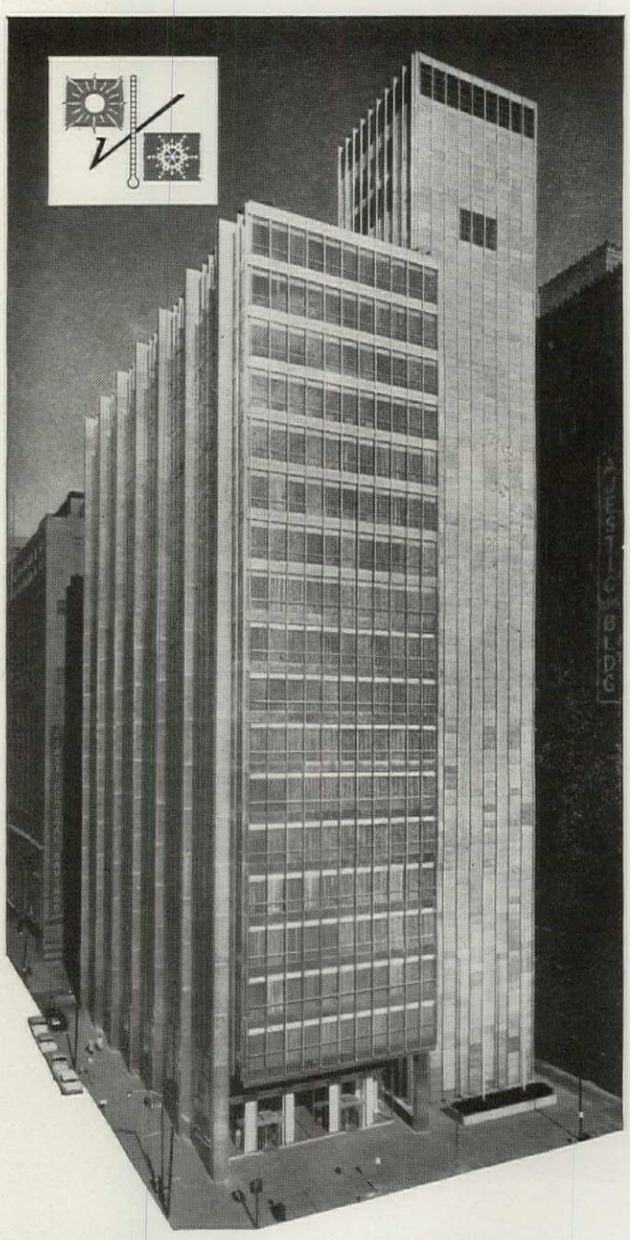
Copper & Brass Sales, Inc. (Kaiser Aluminum Distributor), Detroit, Michigan

Inland Puts the Accent on Comfort with Johnson Pneumatic Controls

Welcome newcomer to Chicago's Loop is the pace-setting Inland Steel Building, a 19-story beauty with such features as spacious, clear span interiors, a stainless steel and glass exterior, and adjoining service tower housing elevators, stairs and all mechanical services.

Such a setting naturally calls for equally modern provisions for personal comfort and efficiency. A dual duct air conditioning system, precision-regulated by a specially planned Johnson Pneumatic Temperature Control System, provides an ideal working climate in each office. At some 1,400 points throughout the building, hot and cool air are perfectly proportioned, mixed and delivered to maintain the exact temperature level selected by individual office occupants!

Here, indeed, is the very finest in air conditioned comfort!



Inland Steel Building, Chicago. Skidmore, Owings, & Merrill, architects and engineers; Turner Construction Co., general contractor; Economy Plumbing & Heating Co., Narowetz Heating & Ventilating Co. and The Zack Co., mechanical contractors; all of Chicago.



Note how perfectly Johnson office thermostats are fitted and finished to match movable partition posts in Inland offices.

Let Johnson put the accent on comfort in your clients' buildings, as it has for Inland Steel and countless others. The specialist Johnson organization has installed the pneumatic control systems in a majority of the nation's leading buildings. A nearby Johnson engineer will gladly make recommendations on any problem of temperature or humidity control without obligation. Johnson Service Company, Milwaukee 1, Wisc. 105 Direct Branch Offices.

JOHNSON CONTROL

PNEUMATIC SYSTEMS

DESIGN • MANUFACTURE • INSTALLATION • SINCE 1885

TEMPERATURE CONTROL SYSTEMS FOR SCHOOLS, OFFICES, FACTORIES, STORES, HOSPITALS, HOTELS, PUBLIC BUILDINGS

Biggest customers . . . oldest customers

BIGGEST CUSTOMERS

Forum:

Your article listing "Building's biggest customers" (FORUM, August 1958) was most interesting. The number of companies that build consistently is very small, including primarily utilities and chain stores, while the number that build spasmodically is voluminous. I believe that your list of 100 largest customers for 1959 would be drastically different from 1957. As a matter of fact, your estimates for 1958 indicate in some degree the wide variation that might be expected in the programs of large companies. The variation in the programs of small and medium sized companies is even greater.

H. C. TURNER, JR., *president*
Turner Construction Company
New York City

Forum:

You have done an interesting job. You have shown that very few companies let construction contracts at large and steady annual rates. Kaiser Aluminum, for instance, dropped from $65.8 million in 1957 to $1.3 million in 1958. Construction activity for the country as a whole can be fairly stable, but it is rare that the building activity of any one company can be steady. Contractors must be in a position to go from client to client as easily and as effectively as a lawyer.

ROBINSON NEWCOMB
Robinson Newcomb Associates
Washington, D. C.

Forum:

This is an exceptionally helpful tabulation from two standpoints: One is to convince the reading public of the confidence that the major companies have in our basic economy, and the other is for information to be garnered by the building industry with respect to how much business is being transacted by the various major companies.

R. C. DALY, *president*
George A. Fuller Company
New York City

HOUSING THE AGED

Forum:

I have read with pleasure your article "Housing for the Independent Aged" in the August FORUM. It is important that architects and planners should be aware of the growing numbers of older people in our society and of their need for active participation in life to the greatest extent possible. This awareness will influence design not only of housing for the elderly, but of all housing and all public buildings.

It is heartening that the article concerns itself so intelligently with the need for social services as well as good physical environment. Social and physical planners must pool their knowledge and efforts to meet the needs of the modern community.

GENEVA MATHIASEN, *executive secretary*
National Committee on the Aging
National Social Welfare Assembly
New York City

Forum:

Because the University of Illinois offers unusual opportunities to handicapped students, we were particularly pleased with your story on housing the aged. It is our philosophy to provide only such special facilities as will encourage safe independent living for these people rather than setting them apart as "different" in an isolated group. We were encouraged to find this philosophy reflected in your article.

MARY B. FARNHAM
Department of Home Economics
University of Illinois
Urbana, Ill.

SPREADING SHELL

Forum:

Your article on shells in the July issue gives the false impression that there are only a few shell structures in isolated areas of this country, and that they have been done by a few New York firms. In Denver there are over 25 shell structures. In Seattle, the firm of Worthington and Skilling has built over 50 shell structures. In these areas, shells are accepted by engineers, architects and contractors as an economical method of construction.

MILO S. KETCHUM
Ketchum and Konkel,
Consulting Engineers
Denver, Col.

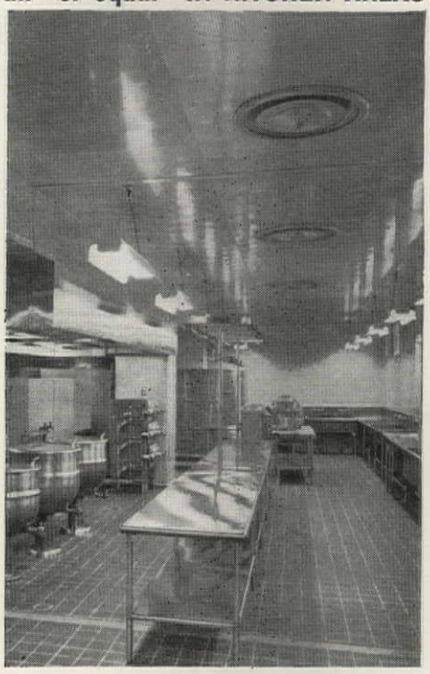
TO THE RESCUE

Forum:

Thanks for "Architecture Worth Saving" (FORUM, June 1958) which calls atten-

Continued on page 82

WHY SIMPLEX CEILINGS almost never lose a specification to an "or equal" IN KITCHEN AREAS



SIMPLEX aluminum acoustical ceilings unite material and design into a product uniquely suited to the needs in kitchen areas.

1. **All aluminum construction** insures freedom from moisture damage.
2. **Permanent aluminum finishes** never need repainting and assure lowest maintenance costs.
3. **Dead flat ceiling surface** has no bevels or ridges to trap dirt and is easiest to clean.
4. **High 85% Noise Reduction Coeff.** reduces kitchen noises to a whisper.

The SIMPLEX suspended aluminum acoustical ceiling is the only one with *all* the above features.



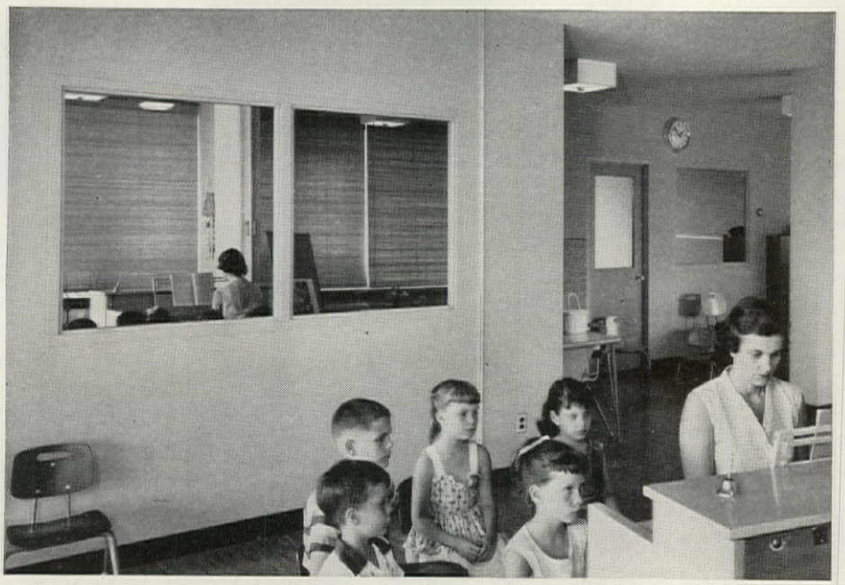
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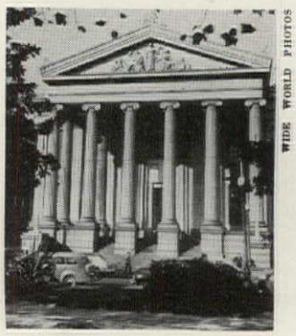
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EARL H. REED, *chairman*
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PHILADELPHIA'S KELLY

Forum:

Regarding your news on building in Philadelphia (FORUM, July 1957), we would be pleased to have John B. Kelly in the ranks of nation's brick manufacturers. However, Kelly is not a "brickmaker." He is the largest mason contractor in Philadelphia and probably one of the largest on the East Coast.

LEONARD KIRSTEN, *director of public relations*
Structural Clay Products Institute
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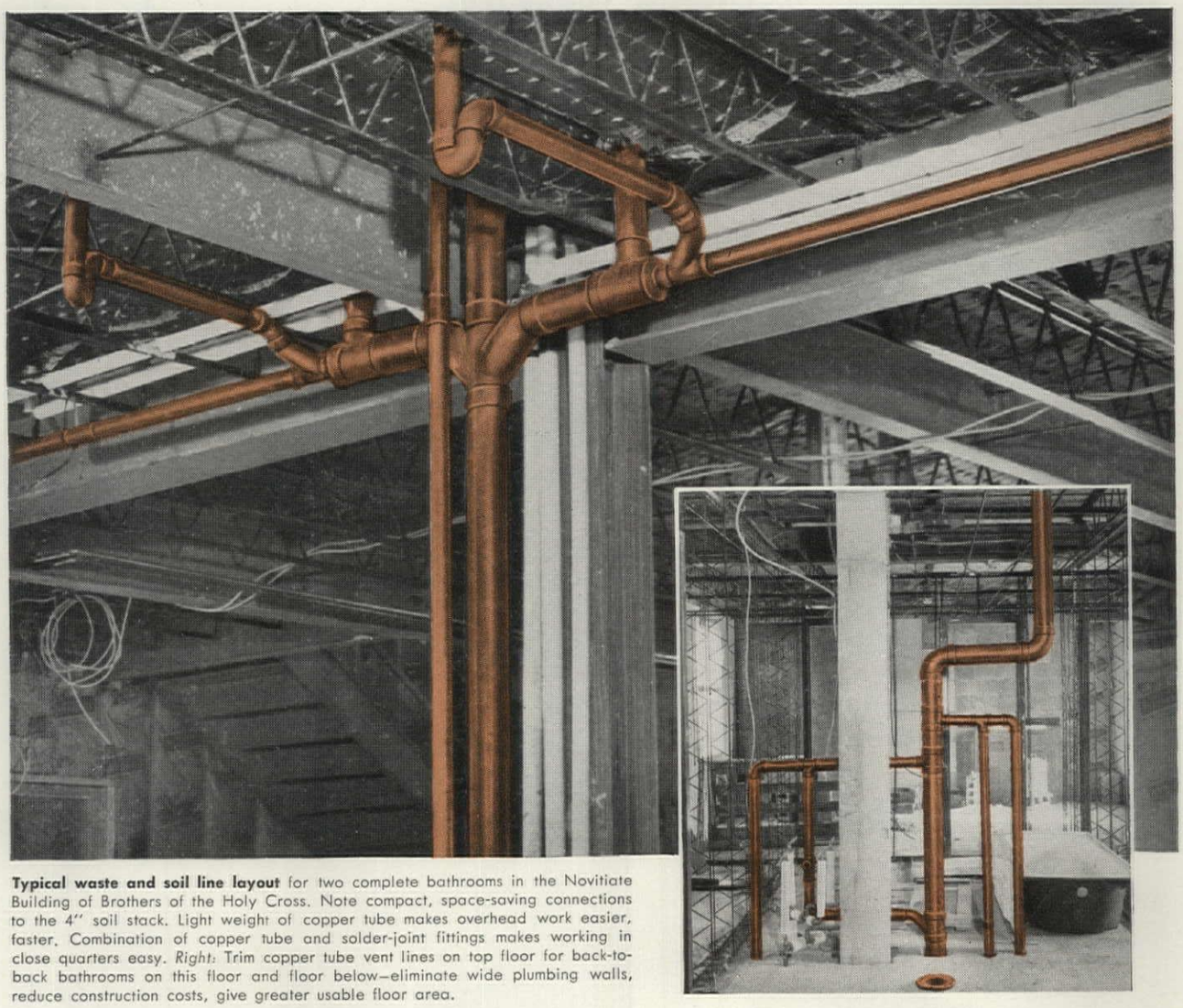
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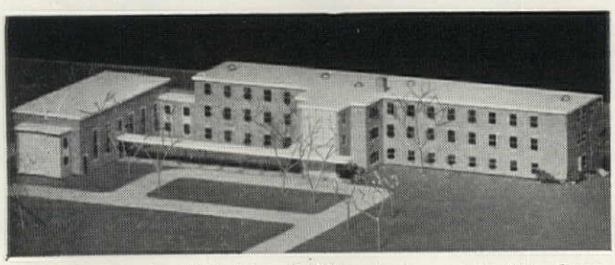
Typical waste and soil line layout for two complete bathrooms in the Novitiate Building of Brothers of the Holy Cross. Note compact, space-saving connections to the 4" soil stack. Light weight of copper tube makes overhead work easier, faster. Combination of copper tube and solder-joint fittings makes working in close quarters easy. *Right:* Trim copper tube vent lines on top floor for back-to-back bathrooms on this floor and floor below—eliminate wide plumbing walls, reduce construction costs, give greater usable floor area.

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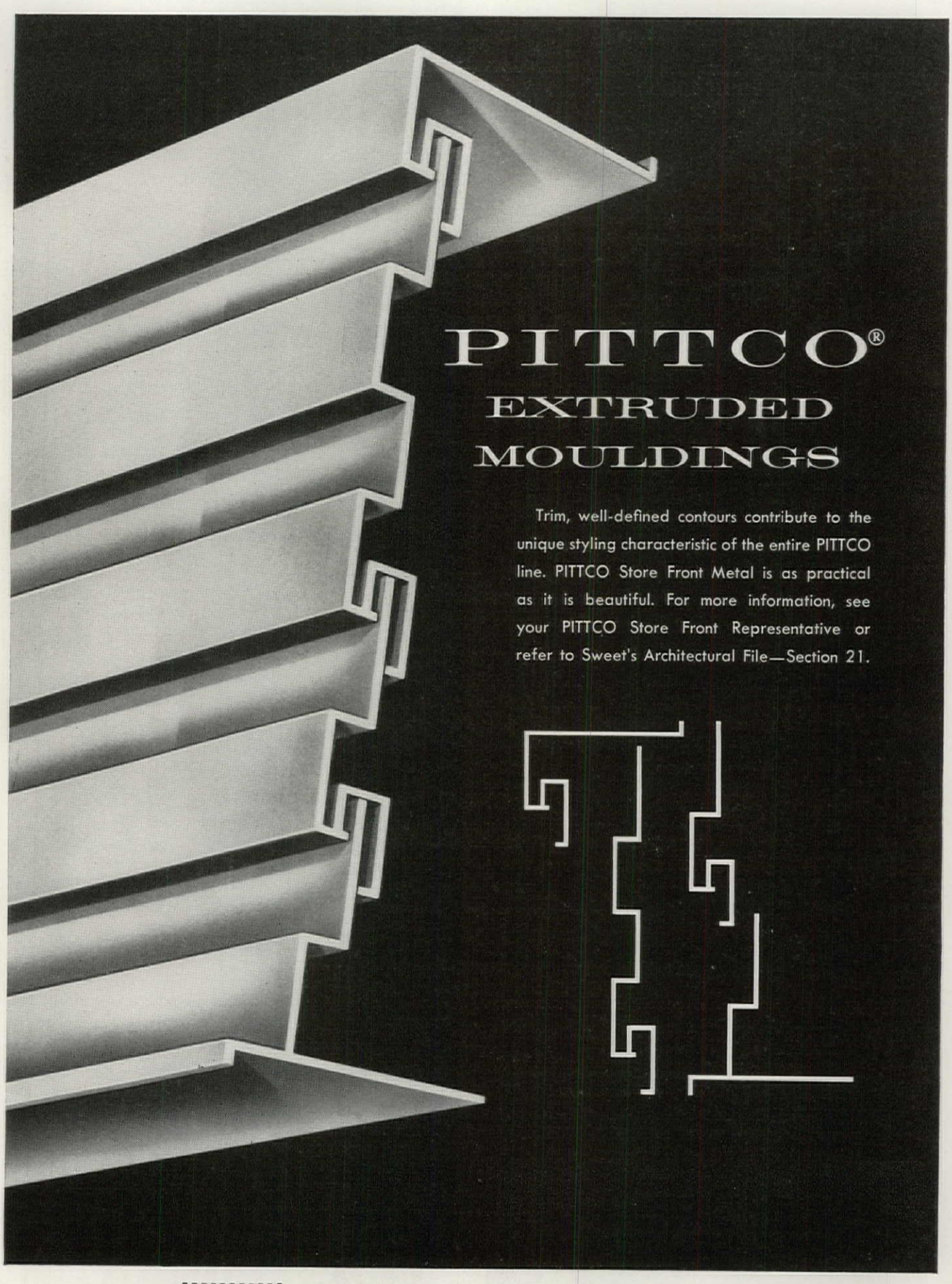
Model of Chapel and Novitiate Building, Brothers of the Holy Cross, Kinderhook, N. Y. Anaconda Type DWV copper drainage tube and Anaconda cast-brass drainage fittings were used on interior soil, waste, and vent lines. Architect: Toole and Angerame, Albany, N. Y. Plumbing and heating contractor: Farrell Bros., Albany, N. Y.

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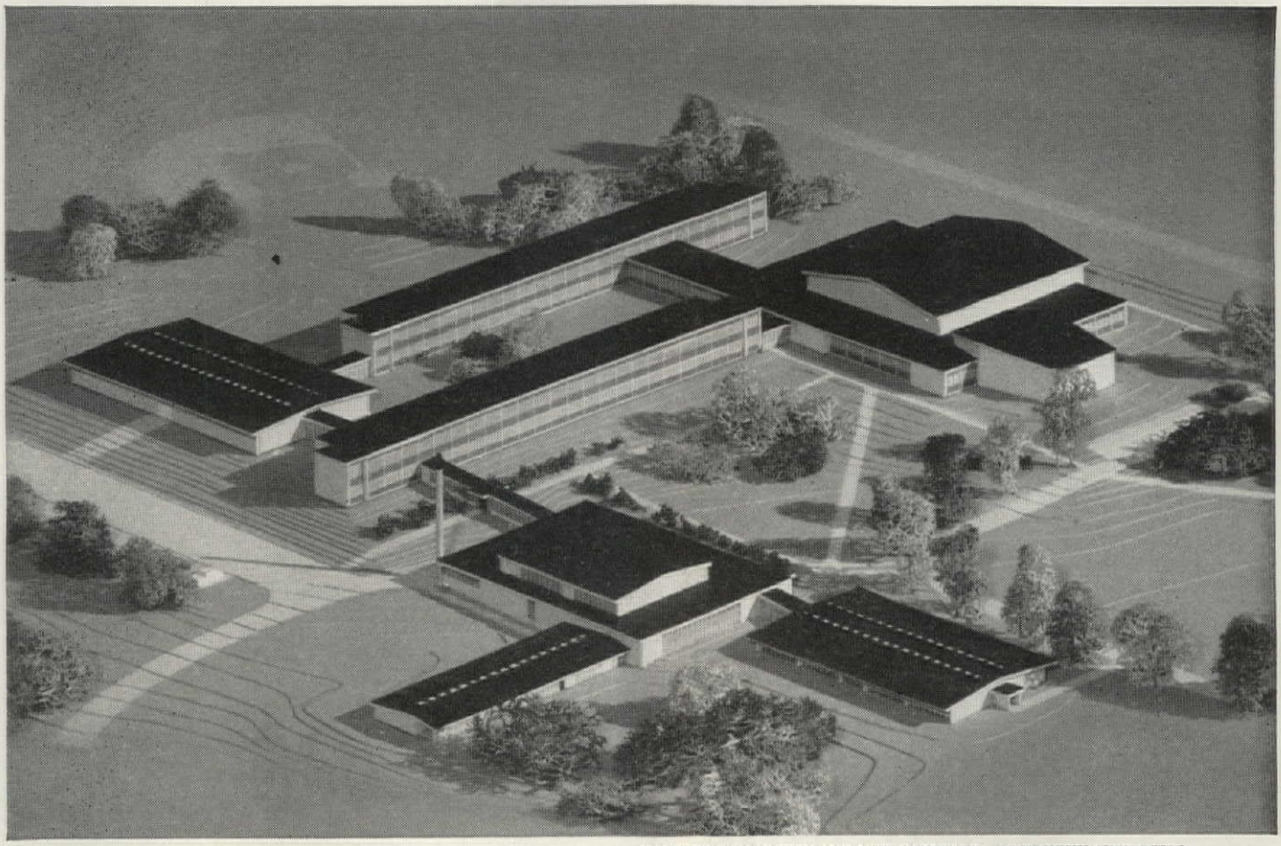
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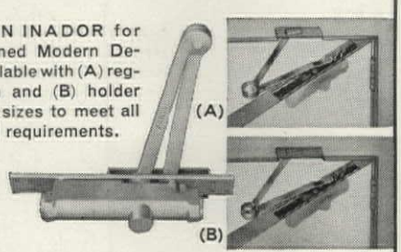
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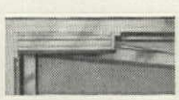
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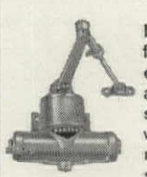
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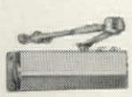




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Architects: Carson & Lundin
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Editorial

Architects big and little

FORUM'S survey of the 100 biggest architectural firms in the U.S. (page 112) should be ample solace to the hand-wringers who predict professional extinction for architects in an age of expanding bigness. This survey, among other things, proves that architects are as capable of building big organizations as anyone else.

But in architecture, as in most activities, there is nothing intrinsically good about bigness, just as there is nothing intrinsically bad about it. And in the complex, dynamic mixture of art and science, profession and business which is the practice of architecture today, this is an essential qualification.

Indeed, many of the buildings which have contributed most to architecture were done by small firms — some of them one-man small. Some of the big firms on FORUM'S list, in fact, became large organizations on the strength of their key contributions as small firms. And, some of these small firms remained small—by choice.

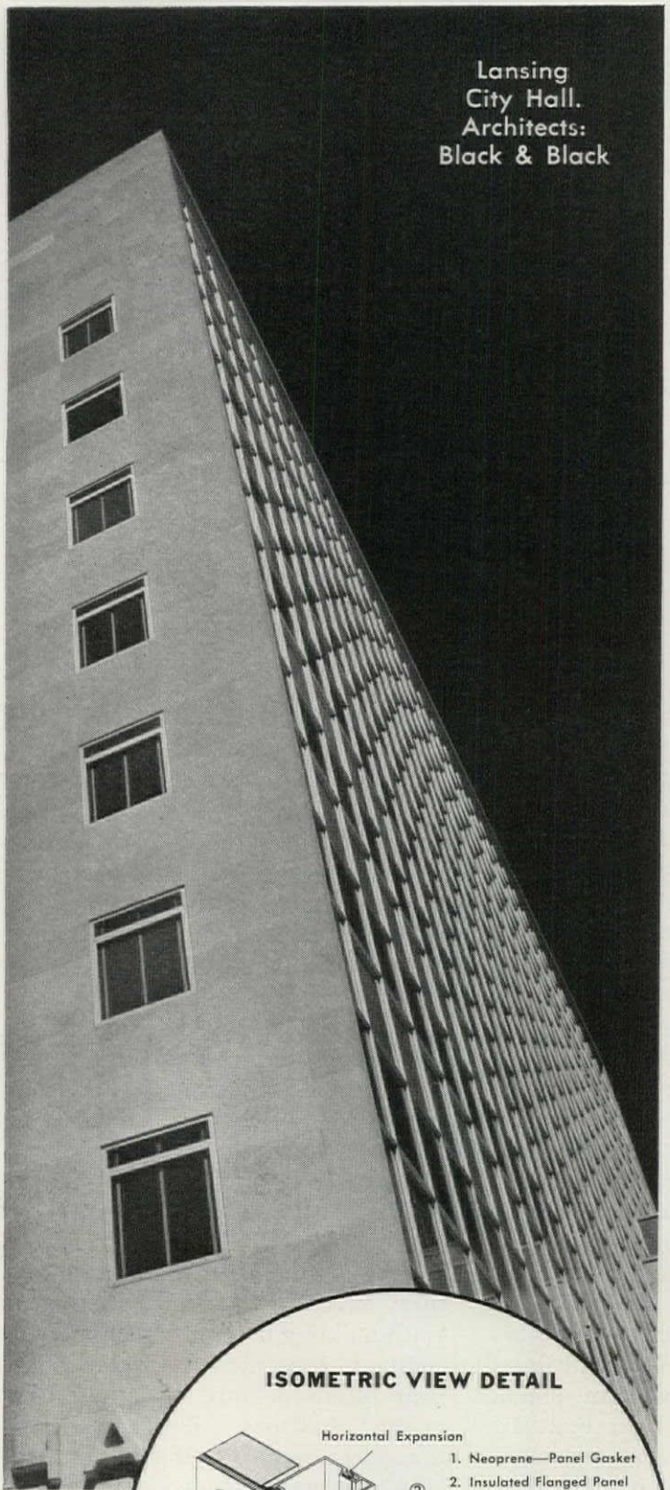
Such a choice is feasible and sound because architects, like doctors, can practice as individuals and still serve their clients well with the help of such associates and consultants as each project may require. Most of the great engineers, planners, landscape architects, interior designers, and economic consultants are, in fact, equally available to the small firm or to the large one.

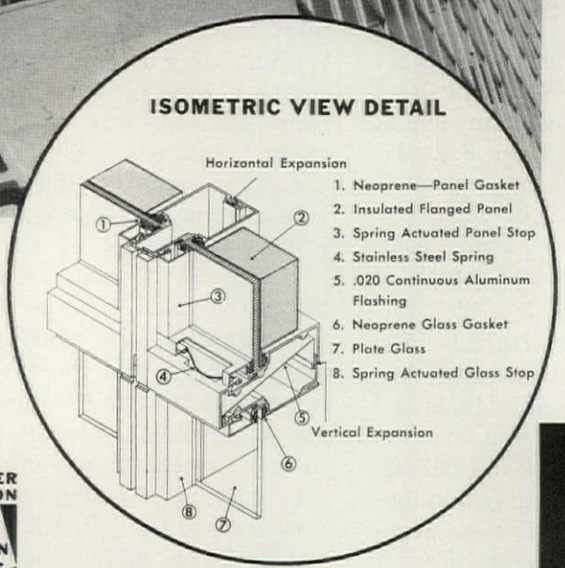
Because of this underlying individuality, the practice of architecture need not become a stereotyped activity confined to big firms. Fortunately, the survey carries its own evidence that even the biggest firms do not follow a pattern. Rather, they show a wide difference in the building type accounting for their primary activity, in the ratio of designers to engineers to draftsmen, and, most significantly, in the relationship between dollar volume and employee numbers.

This is a happy augury. The incidence of great architecture — or merely good building—would surely decline if the practice of architecture were to become stereotyped. With building becoming increasingly complex, it is obvious that the big firm offers definite advantages in many situations. But there will always be room for the small practice, the young independent, and the iconoclast genius.

If bigness is really important to the job at hand, then so be it. But, unfortunately, the wide range of suitable firms and the many facets involved in the choice of an architect for a particular job are confusing to many in charge of building projects. Instead of matching a firm of architects to the job, a firm is sometimes chosen merely because it is big. A small-town church board, for example, recently called in a

continued on page 89





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AW series, shown above, was used on the Lansing City Hall.

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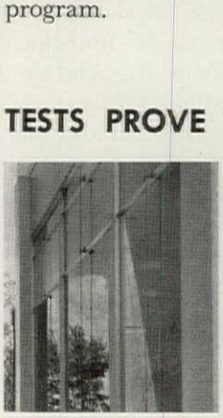
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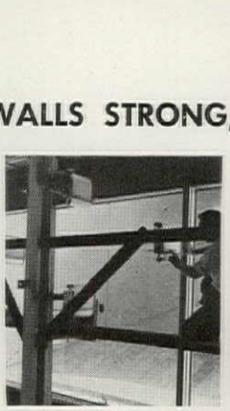
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local architect and loyal parishioner to tell him that his firm was "not big enough" to plan their new church. Instead, the commission went to a big firm in a nearby large city. Chances are that the new church will neither be a great work of architecture nor will it obtain the benefit of the devoted attention it would have received from the architect at home. The board was ill-advised, and so are countless clients who make similar choices. Frank Lloyd Wright, who is not on the big list, has said that his firm is under his hat, and in truth, the "biggest" firm may still be found under the well-worn hat of an individual. He may be a genius or he may, quite simply, be the right man for the job.

Inhuman redevelopment

In urban redevelopment operations, prudence is doubly important because private enterprise working for a profit enjoys the aid of drastic government powers. These cannot only evict people from their existing homes—and stores—but can also change beyond recognition the neighborhoods with which people are familiar. Consequently the impression can easily be given that big government is interfering with the most intimate rights of little people for the sake of profits to big interests.

This accusation has arisen in New York. There the Slum Clearance Commission made very broad promises to developers creating a large luxury apartment project called Washington Square Southeast. These promises included creation of a new major thoroughfare through the adjacent Washington Square, which serves the contiguous Greenwich Village community as its most important park. The stated purpose of the proposed roadway was to connect the new development with Fifth Avenue.

The result has been a major uproar over carrying major traffic through the park. Residents concluded that their only safeguard against gradual decimation of the park by steps like these was to oust traffic from the park altogether except for emergency vehicles. And the leaders of this highly articulate, though far from wealthy community, were convinced that the roadway was really a piece of preparation for a succession of other such projects that would alter the whole character of their beloved and well established, if somewhat shabby, community.

The underlying fear, not only in New York but in other cities also, is that whole networks of community relationships will be disturbed by actions dictated from above, without consulting community leaders. And this community threat is superimposed on direct personal losses. *The New York Times* has established that storekeepers evicted to make room for redevelopment projects face a five-to-one likelihood of being finished. In many cases bankruptcy has resulted even without eviction, because of neighborhood dislocations.

Bulldozer tactics of the New York type could cause legislative repeal, locally and nationally, of the entire redevelopment procedure with its vast and beneficent potential. Wiser leaders in cities like Philadelphia have gone a little slower about "getting things done" to prevent the feeling that "what is getting done is the people."

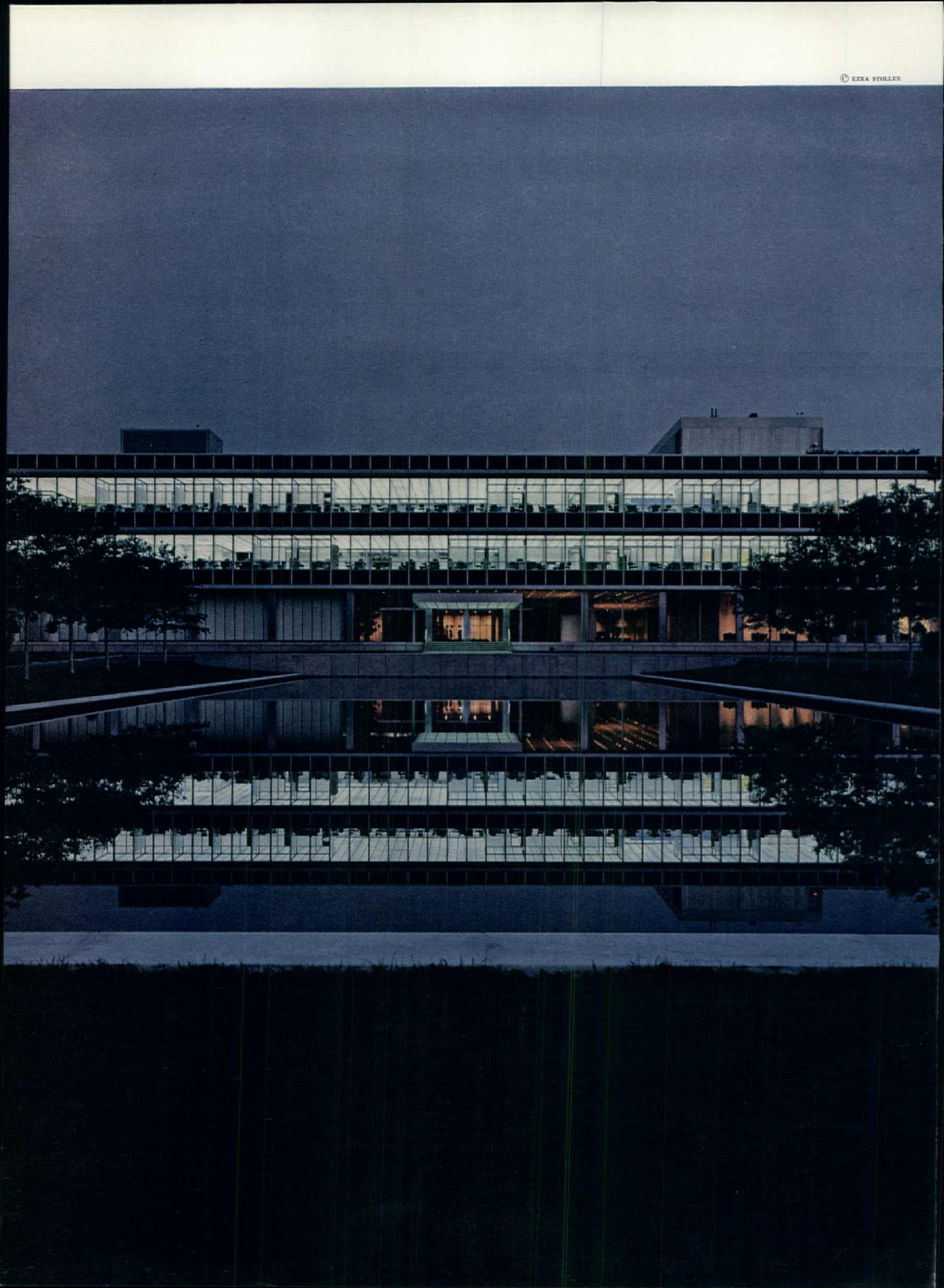
A gift for Belgium

Now that the Brussels Fair has to make plans for closing, many people have asked what is to become of the beautiful U.S. pavilion and the theater, by Architect Edward D. Stone, that have been such favorite features? It would seem extravagant simply to destroy these two beautiful buildings.

The natural answer is, "give both to the Belgians"; but sad experience with generously intended yet ill-considered U.S. gifts has made the State Department prudent. It happens that some Belgians have been unofficially inquiring about the possibilities. The gift should not be offered unless welcome.

Because Congress is not in session, the gift can be made only as it fits existing legislation. Existing agreements require that the ground be put back into its pre-fair condition, a procedure that will be rather costly. If the same cost, or less, would cover reconditioning and transfer, there should be no legal obstacle. This seems likely.

All the possibilities should be, and no doubt are, being carefully considered in both governments. These are exceptionally beautiful buildings. Architecture lovers would like to see both structures preserved: and if the Belgians would like to keep them, Americans would very much like to let the great City of Brussels have them. END


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Classical in concept, precise in detail, a company's headquarters adds new prestige to its product.



At rear, the podium opens up to the south.

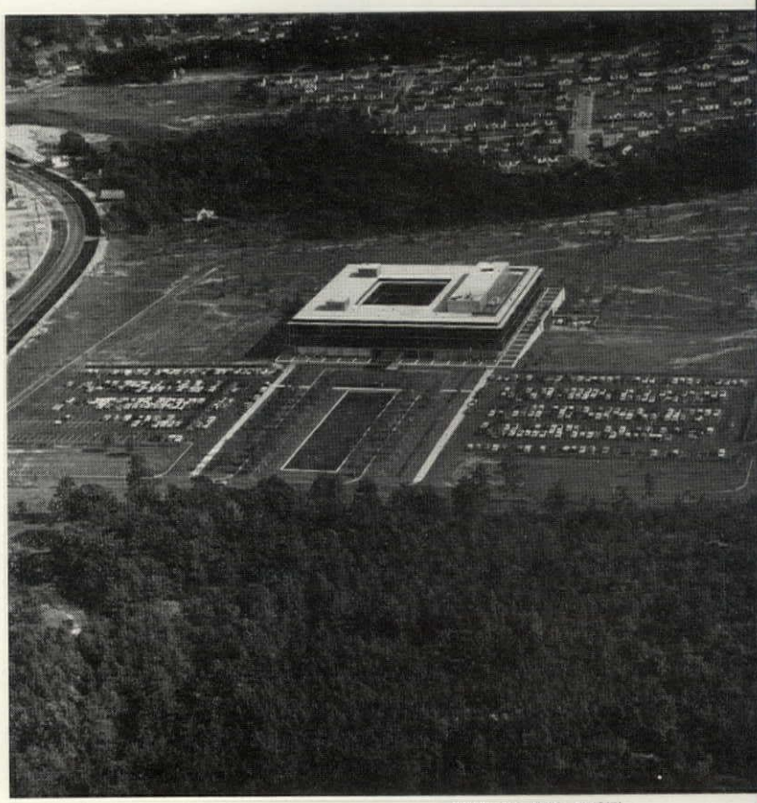
Reynolds wraps itself a package in aluminum

In a suburban pasture five miles north of downtown Richmond, Virginia, the Reynolds Metals Company will celebrate its 30th birthday this month by formally presenting itself with a brand new company headquarters wrapped up in a shiny aluminum package. Like many others in a growing parade of sleek corporate showpieces on the suburban scene, Reynolds' new $11.5 million general office building bears the familiar hallmark of Architects Skidmore, Owings & Merrill. Each detail is the result of painstaking refinement through a long line of distinguished SOM building projects, from its famed Lever House in New York (FORUM, June 1952) to its newer and equally famed Connecticut General building outside Hartford (FORUM, September 1957). In its new aluminum armor, the well-machined SOM look is particularly suited to Reynolds, a major producer of well-machined aluminum for the building industry, and a company that has already demonstrated its penchant for quality by sponsoring a series of books and annual awards dedicated to good architecture.

The major elements of SOM's latest scheme, developed under Design Partner Gordon Bunshaft and Associate David Hughes, are even more sharply classical than those of its predecessors: a symmetrical approach down a formal mall (air photo right); a lower story rising out of the sloping site to form a solid-looking, temple-like base (photo above, right); a hollow square of lighter upper stories resting on a peristyle of columns around an inner court. (Another hollow square of offices may be added beside the first, as the staff expands beyond the present capacity of 1,000.)

At twilight, mirrored in a 250 foot long reflecting pool lined with graceful willow oaks (photo left), the new building glitters like the showcase it is intended to be. From gleaming column covers and luminous ceil-

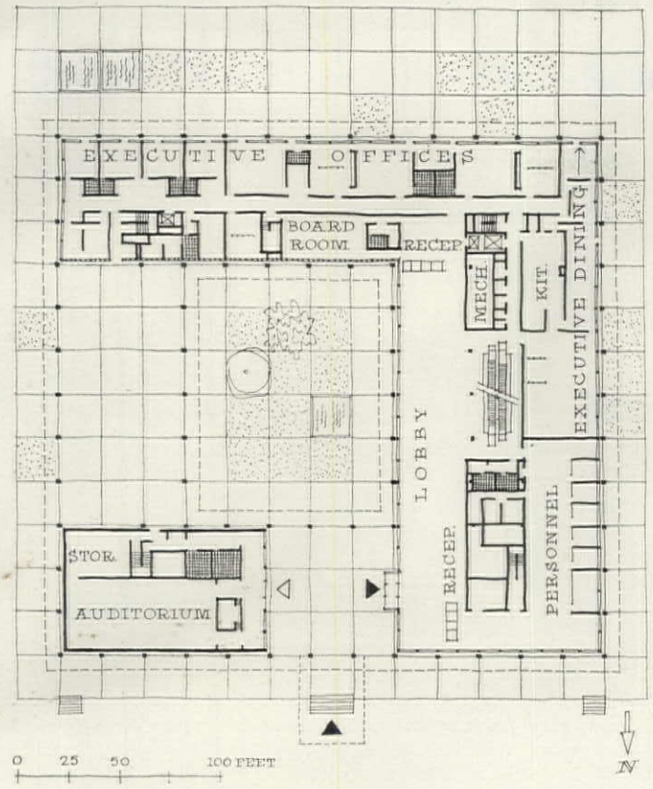
Classical hollow square of offices, set atop a terrace podium, faces north to an entrance drive around a pool. The penthouse contains an executive sun room and gym.



PHOTOS: J. ALEX LANGLEY

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Seen from the court, a broad sheltered entrance leads to lobby.

ings down to doorknobs and drawer pulls (see details, pages 96 and 97) Reynolds and its fabricators have put on permanent display close to 1¼ million pounds of their metal—and done it with precise good taste.

Entering the new Reynolds building through a broad north portico (photo above, right), the visitor emerges almost immediately into a spacious central court adorned by a five-jet fountain set against a backdrop of holly, and by a stately Southern magnolia 40 feet high. To the left, a colonnade beneath the upper office floors opens up an eastward view (photo left) and makes the side of the building toward the main road from Richmond more interesting to the passing motorist. As a counterpoint to the shiny aluminum trim, the black-anodized aluminum spandrels and the movable gray-and-blue aluminum sun louvers, the court is paved with panels of warm red Colonial brick often seen in Virginia. These brick panels are interspersed with panels of planting, neatly defined along the lines of the columns by 2 foot wide precast concrete strips surfaced with quartz chips and white cement (this material is also used as facing for the building's base).

Turning to the right from the entrance portico, the visitor passes through a glass and aluminum entrance vestibule into the main reception lounge, which overlooks the court and colonnade view (photo right). Generously proportioned and sparsely furnished under a 14 foot ceiling, this lounge has ample space opposite the entrance for displays of Reynolds products and processes. At the other end of the lounge, past an executive reception area and board room, Reynolds' top officers can be easily reached along the south side of the building, where they overlook their own terrace set atop the podium of the basement floor (see plan above, photos overleaf).

REYNOLDS METALS COMPANY GENERAL OFFICE BUILDING, *Richmond, Virginia.* ARCHITECTS AND INTERIOR DESIGNERS: *Skidmore, Owings & Merrill.* FACILITIES PLANNING, ENGINEERING, CONSTRUCTION MANAGEMENT: *Ebasco Services, Inc.* LANDSCAPE CONSULTANT: *Charles F. Gillette.* ACOUSTICAL CONSULTANTS: *Bolt, Beranek & Newman.* GENERAL CONTRACTOR: *George A. Fuller Co.*

Lobby, overlooking the court, has ample space for displays.



PHOTOS: J. ALEX LANGLEY



President's office is large enough to serve for conferences.



Night view from executive terrace shows corner dining room.

Executive dining room is black and white, accented by art.



PHOTOS: ALEX LANGLEY

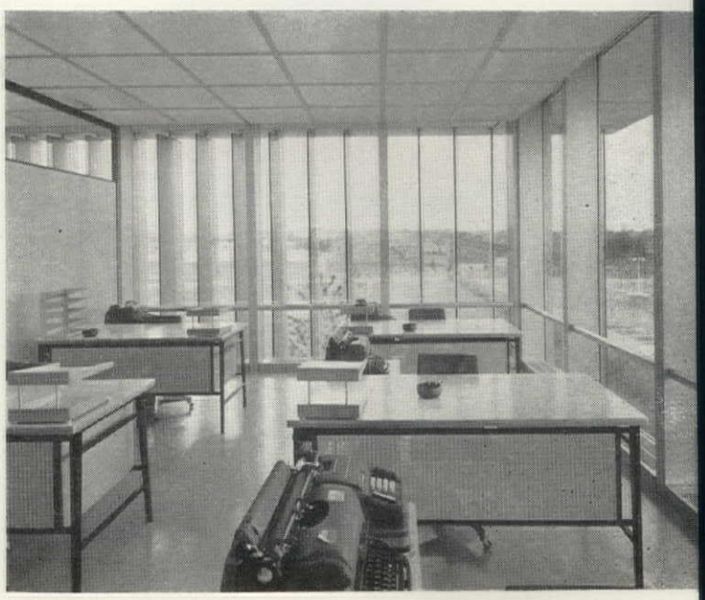
Along the rear of the new building, Reynolds executives may step from their glass-walled offices onto a formal landscaped terrace (photo above), enjoy a view of a rolling 38-acre site rimmed by woods. The offices, furnished with restraint, display SOM-designed furniture with aluminum frames and desk accessories, curtains, and carpeting accented with aluminum thread. On the walls are paintings by Picasso, Le Corbusier, Steinberg, Albers, selected with the help of the architects.

Directly below the executive suite and terrace is an employee cafeteria-lounge, with a sun terrace of its own (photo right, above). The cafeteria is equipped to serve up to 2,000 people in three shifts as the building expands. Also on the lower level are a modern medical suite, supply and duplicating facilities, spaces for boilers, two 600-ton air-conditioning compressors, and an automatic control center for the building's mechanical network.

From the main-floor reception lobby, twin moving stairways rise to two general office floors, each containing 47,000 square feet of floor area uninterrupted by columns (photo right). The space is clear-spanned by steel trusses 62 feet long and 3 feet 10 inches deep on structural steel window mullions set 5 feet 2 inches apart and sheathed in aluminum (an economical, nonfireproof construction possible in the country but rarely allowed under stringent city codes). Suspended cellular aluminum ceiling panels diffuse both conditioned air and low-brightness fluorescent light into the offices below, and effectively conceal the ductwork, wiring, light fixtures, and steel trusses above (details overleaf). Fitted to the 2 foot 7 inch aluminum ceiling grid are rearrangeable aluminum partitions with honeycomb cores, aluminum posts, and baked enamel panels. Windows are shielded from the sun by the moving outside louvers, and by lightly-tinted gray glass (details overleaf).



Employee cafeteria-lounge opens out to its own sun terrace.

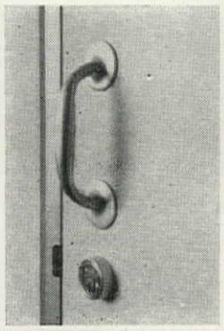


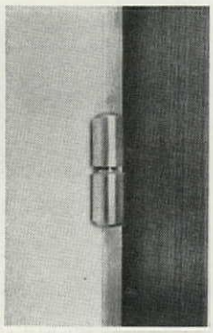
Clerical offices above are wide open to daylight and view.

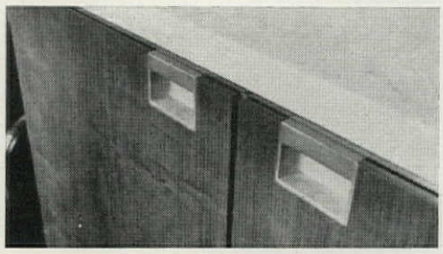
Lighting is controlled by cellular ceiling and by louvers that are colored gray toward the sun, cool blue toward the interior.

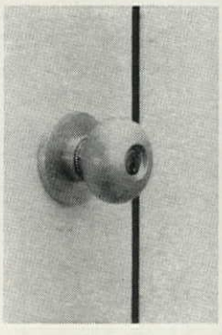


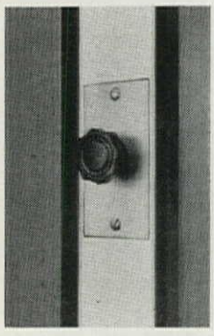
Contents of the Reynolds-wrapped package: from doorknobs to sun louvers, the building displays aluminum in a variety of handsome ways.

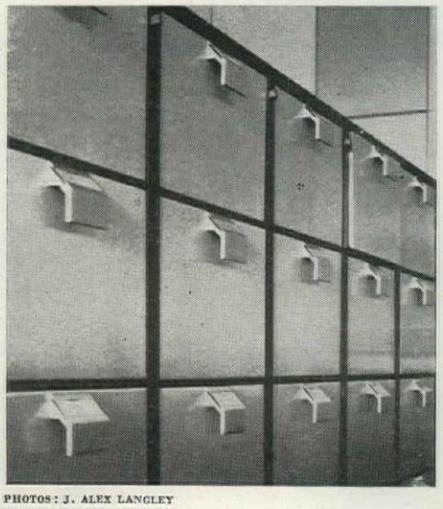
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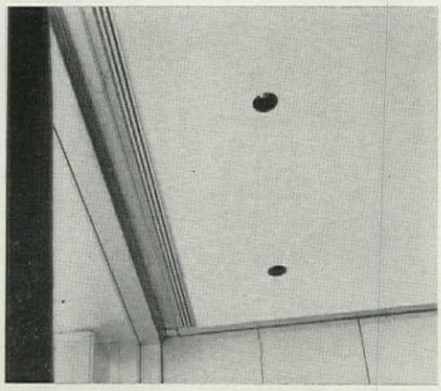
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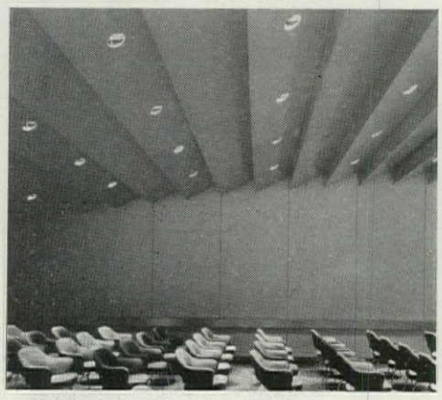
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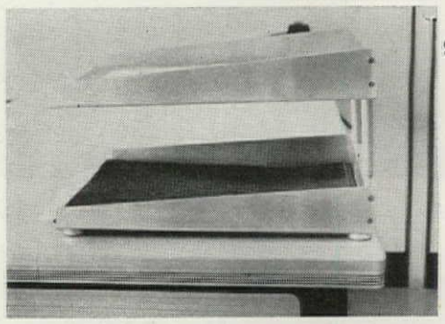
PHOTOS: J. ALEX LANGLEY

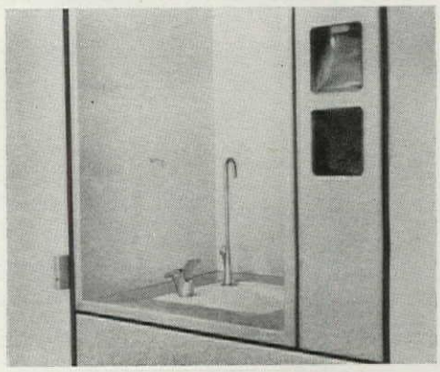
Hardware of satin-finished aluminum (left) provides well-detailed accents here and there throughout the new building. The brightwork includes handles (1) and hinges (2), drawer pulls (3) and doorknobs (4), rheostats (5) and switch panels. In the executive offices, filing cabinets have special pull-down fronts, also of aluminum (6).

Ceilings on the main level (7) neatly incorporate aluminum slot diffusers for air conditioning along wall and partition lines (ductwork behind is aluminum too). In the auditorium (8) near the main entrance a sawtooth aluminum ceiling conceals lights and diffuser slots, helps give the room near-perfect acoustics.

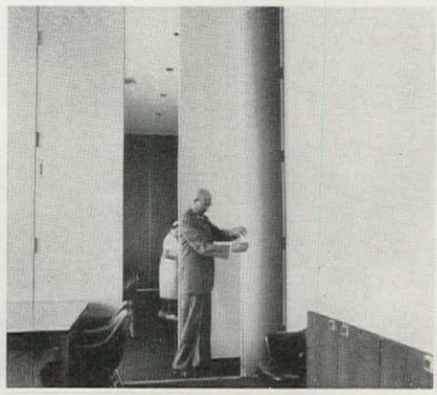
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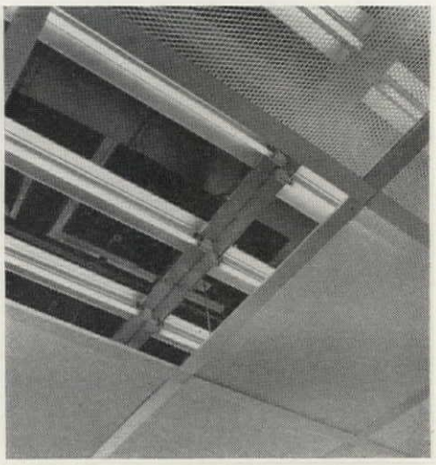
10. 

Accessories designed by the architects for office areas include tapered in- and out-boxes of aluminum (9), water coolers with cup dispensers and receptacles (10) carefully unified into floor-to-ceiling aluminum units between enameled partition panels. Offices are furnished with a new line of standard aluminum desks, topped by aluminum framed blotters, pads, and ash trays.

11. 

Doors of aluminum, 14 feet high, fold back to combine executive dining rooms (11).

12.



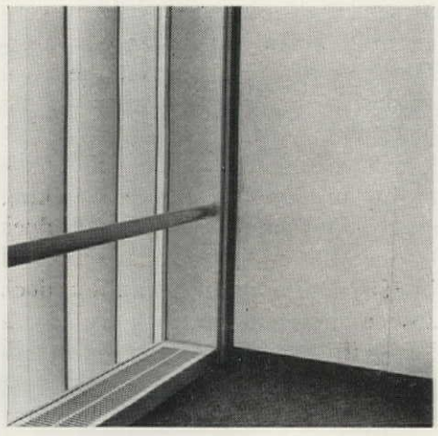
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Modular interiors (above) are uniformly lighted and air conditioned through cellular ceiling panels of aluminum hung on a 2 foot 7 inch grid made up of aluminum T-shaped sections (12). The honeycomb pattern of each panel consists of hexagonal cells ⅜ inch in diameter which cut off the unsightly view of fluorescent lights, duct-work, and steel trusses from anyone glancing up at an angle of 45 degrees or less. Fitted to ceilings on a 5 foot 2 inch module are enameled aluminum partitions (13) in an extruded aluminum framework. These partitions can be rearranged at will.

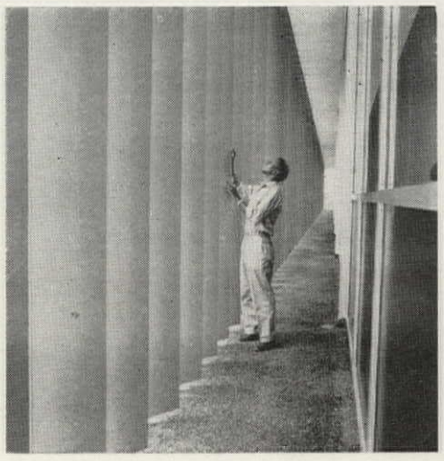
Baseboard convectors, set in low, neat aluminum grilles (14), allow the offices an unusual amount of light and view. Aluminum guard rails separate office workers from the big glass walls.

14.

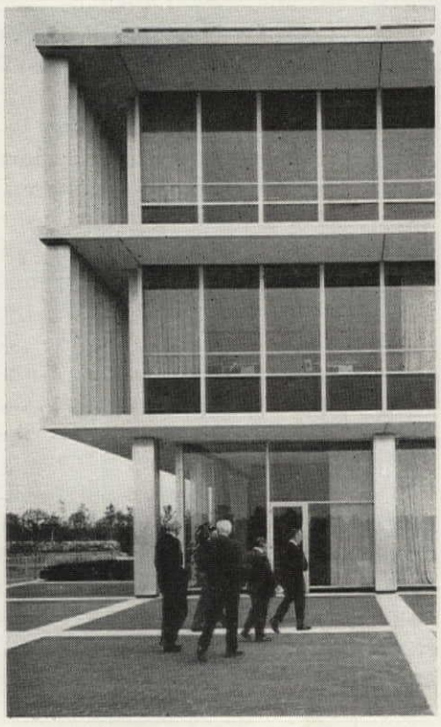


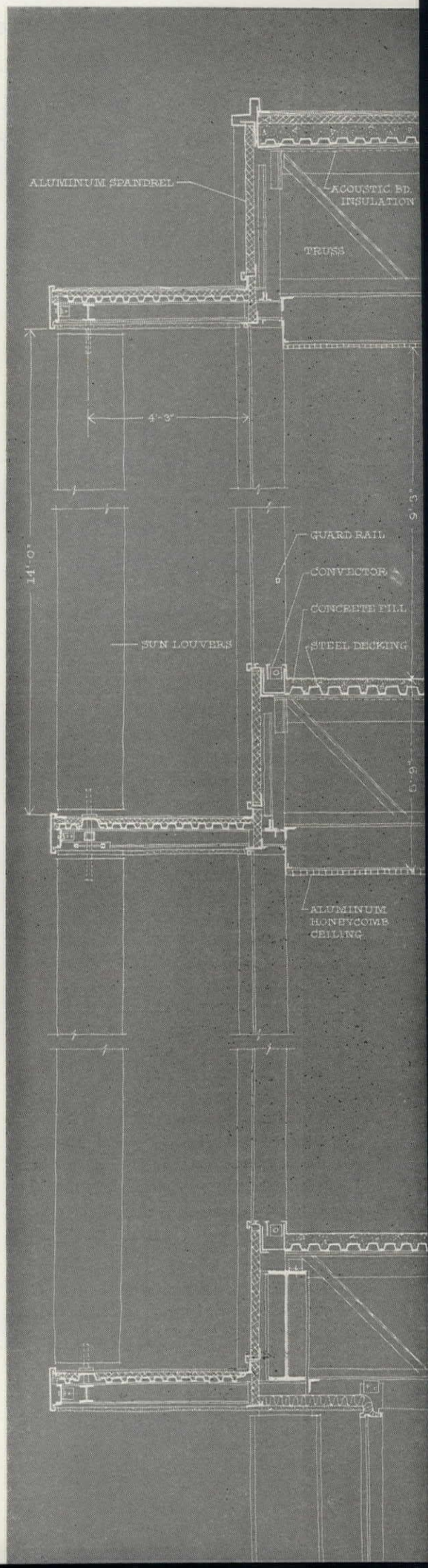
Sun louvers on east and west façades (photos below, sketch right) are set out at the edge of the floor and roof overhangs. The latter not only cut sky glare but act as catwalks for repairs and window washing (15 & 16). In one of the largest installations of its kind, the 880 louvers, each 14 feet high and 22 inches wide, are power-operated on a predetermined program by a master clock which anticipates the daily movements of the sun, gradually opening the east-facing louvers and shutting the west-facing ones as the day progresses. Seasonal differences in sun position are automatically taken care of. An overcast of more than 3 minutes causes photo-electric cells to open the louvers to their widest setting, admitting maximum light; with the return of full sunlight the louvers resume their proper position in the program. By stopping sun heat outside the building, the louvers reduce air-conditioning needs sufficiently to offset their $270,000 cost over a period of years. END

15.



16.





Long range, the St. Lawrence Seaway's volume of ocean traffic may not be so significant as its part in a vast U.S. transportation revolution that will reshape entire cities and regions.

The Seaway's hidden building boom

BY EDWARD T. CHASE

The St. Lawrence Seaway, which will open its first stretch of deep water to ocean navigation next spring, from Montreal to the western tip of Lake Erie, is more than a new ocean lane. It will also put the fuse to an internal transportation revolution that goes far beyond the seaway itself. It will generate a large new industrial development and reconstruction of cities, ports, highways, and commercial facilities in the American heartland, again extending far beyond the environs of the seaway itself. None of this, however, is going to happen overnight, as too much of the promotional literature implies.

The seaway has been oversold in its immediate impact on ocean shipping, and undersold in its long-term significance for U. S. transportation, industry, and building. The fact is, the seaway's greatest immediate impact may be a simple increase in the kind of cargo that inland waterways have carried for years. By the 1970's, however, the full impact of the seaway will begin to be felt, and it will then be seen to be part of a historic event as dynamic and complex as the opening of the West.

This lag is fortunate in one respect, for it allows time for more coordinated civic and regional planning, almost none of which has been done up to now. Not even the major U. S. lake ports have yet deepened their harbors enough to handle the maximum deep-draft vessels the 27-foot-deep seaway will permit. To be sure, there is a loud clatter of big plans, and it is estimated that the ports are spending about $500 million on new and refurbished facilities, with total spending in the next decade likely to exceed the $1.5 billion that the seaway itself will cost. Some evidences of this construction are now appearing in bits and pieces:

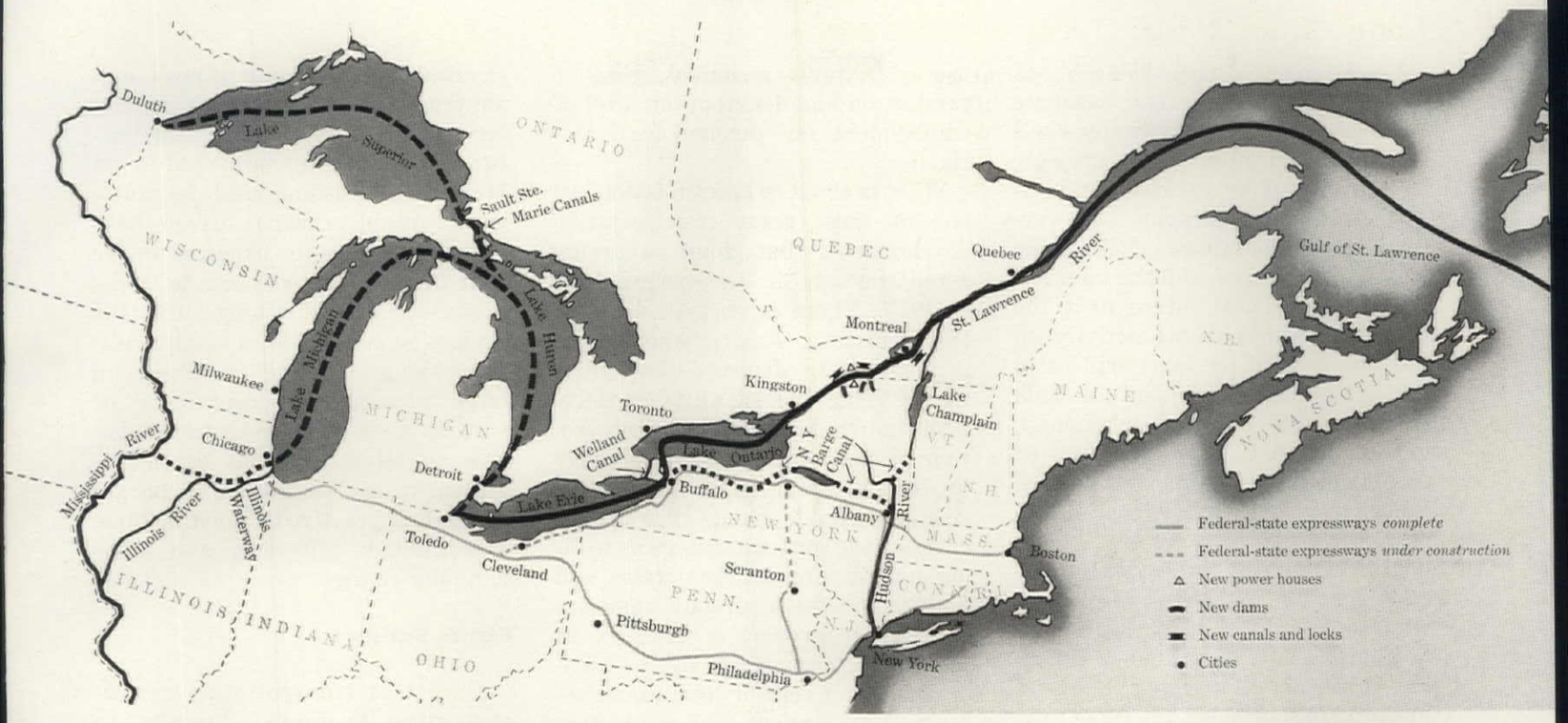
▸ Chicago easily leads in immediate volume and prospects, with a $32 million port expansion program to be completed by next spring, including a $4 million improvement of Navy Pier, jutting 3,000 feet out into Lake Michigan. The major feature of Chicago's total, long-term $125 million program by 1962 will be the Lake Calumet development, in south Chicago, which, with its miles of projected docks, industrial sites, warehousing, transit sheds, access roads, rails and peripheral building, is designed to make Chicago a world port to rival the biggest of the East or West.

▸ Milwaukee, Wisconsin, has a comprehensive, forward - looking port modernization program going. It will spend a total of $11 million by 1960 on eight new berths for big commercial ships and on a big new automobile and passenger pier. It also has a three-year project to reclaim 20 acres of submerged waterfront, and is carrying on the most extensive harbor dredging in its history.

▸ Cleveland and Toledo, Ohio, have a few projects beyond the talking stage: Cleveland, a $1,750,000 dock by the Municipal Stadium completed in 1957 and another $2 million dock now under construction; Toledo, a $1.4 million waterfront site development for which contracts have just

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Mr. Chase is a vice president of Cunningham and Walsh (advertising), a former staffer on the New Yorker, *and a free-lance writer whose last effort for* FORUM *("The hundred billion dollar question," July 1957) was a report on the national highway program.*



Great Lakes-St. Lawrence Seaway will reach Detroit in 1959 (heavy line), and by 1962 the 27-foot-deep channel will be extended to Duluth and Chicago (dashed lines). Canals connect with Hudson and Mississippi Rivers.

been signed and a new $8 million dock built by the Chesapeake & Ohio Railway Co.

▸ Duluth has a $10 million, 120-acre public marine terminal under construction. Other lake ports, however, notably Detroit and Buffalo, are startlingly quiescent, though Buffalo has a master plan for its port. All told, 21 cities have applied for a total of $1.3 billion in federal help for port improvements, mainly dredging, which must start soon.

But a common feature of all these projects and plans is that, in nearly every city, they are in the hands of multiple authorities, plus private interests, without any real focus or master plan. Not even Chicago has a comprehensive metropolitan planning agency to see that the new growth is coordinated not only with the fabric of the city but with the hinterland. As for inland cities, they are still largely unaware of the seaway's potential significance to them, but they, too, can eventually be expected to have the wisdom of tying into the seaway with transportation, warehousing, and new productive facilities.

Canadian port cities are further ahead in both volume of construction and planning, with Toronto having a master plan for port expansion over the next 25 years. And if American communities have not yet seen the vision, it may be because they have not yet seen the seaway clearly in perspective, particularly in its long-term revolutionary effects on their own economic, transportation, and urban patterns.

How much ocean traffic?

Economically, of course, the Great Lakes-St. Lawrence Seaway, which, when completed to Duluth in 1962, will lap 4,300 miles of U.S. shore line for the greatest new seacoast in the world, rests on a simple physical fact. It is the energy-friction equation which states that one horsepower will pull 40 tons by water barge against only one ton in a two-wheeled wagon on land. The great cheapness of water transport, which has dictated the rise of cities and civilizations, was the impelling force behind the 35-year-long battle to build the seaway.

But in trying to forecast the amount of ocean shipping that will be drawn into the 2,342-mile-long waterway—the farthest penetration of a continent by ocean vessels in the world—promoters and experts alike overlooked the fact that this is only one aspect of the seaway, and one dependent on many prior variables. Estimates of total annual seaway traffic, of all kinds, have ranged from the U. S. Department of Commerce's optimistic guess of 85 million tons to the St. Lawrence Seaway Development Corporation's 36 million tons during the opening year 1959, of which about 6 million tons is estimated to be general cargo from abroad as against domestic bulk. But the dean of port consultants, hard-headed, soft-hearted Louis Byrnes of New York, who after 40 years in the business is usually right, says that he is being "unduly optimistic in estimating about 1.5 million of tons of such overseas cargo for 1959." Moreover, overseas volume this year, the last shallow-draft navigation season on the St. Lawrence, when foreign traders were supposed to crowd in to gain experience preparatory to the 1959 opening, looks particularly poor, due to the recession and reduced ore movements.

What the wide variation in estimates reflects is not so much the

obfuscations of port press agents as the fact that no one can calculate in advance a major new waterway's true characteristics. These can only be proved out by extensive experience, testing the shipping time factor, labor conditions, toll rates, weather, distances, and the like. Actually, for the near future, as in the past, the overwhelming activity on the seaway and the lakes will be in the intramural movement of bulk cargo — ore, oil, coal, chemicals, grain—not in the general cargo or merchandise freight moving in such immense volume in and out of an ocean port like New York. A thorough weighing of the evidence indicates that the full impact of the seaway as a foreign trade route will not be felt until many other things have come about, placing the impact in the 1970's, or about the same time that the giant federal-state highway program is completed.

Four-way transport revolution

To juxtapose the $1.5 billion seaway project with the new $100 billion highway system is provocative. This is the setting in which the seaway becomes a most vivid fact. To discuss the seaway without reference to its role in the whole transportation revolution that is now underway is to miss its full import. For the facet of the seaway that is most exciting is its part in the new technology of transportation, a development that will heavily influence construction trends in the U. S. in the next two decades, causing not only vast changes in present metropolitan areas but the growth of new urban areas.

Broadly viewed, this new technology embraces simultaneously: 1) the vast, new, controlled-access highway system; 2) the modernized, 27-foot seaway; 3) jet airline service on a mass commercial scale; and 4) a less noted but important revolution in cargo handling. This is a remarkable concomitance of events of great long-range economic importance. Transportation is probably the single most important factor in the dynamics of a nation's economy, largely determining the use of natural resources, cost of production and distribution, level of employment, and demand for materials.

What is about to happen is not just one of these great transportation developments but four occurring simultaneously in the period 1959 to 1975. There is no precedent for this in history. Among other things it is going to disprove the cynics who foresee the seaway's capacity going partially unused. For no section of the country is more ready to benefit from these cumulative transport developments than the industrial and agricultural areas making up the Great Lakes states and hinterland which already comprise the richest productive complex in the world, accounting for an estimated 45 per cent of total manufacturing and agricultural production of the U.S.

This Great Lakes industrial complex, originally drawn together largely by the vast network of inland waterways, will receive a further boost from the transportation revolution of which the seaway is a key part. In the long as well as the short run the seaway's incentive to increased industrial development in this area will prove of greater value than the increase of ocean shipping. Already the steel industry has spent over $1 billion on new productive facilities in the Ohio-Indiana-Illinois-Wisconsin quadrant in anticipation of seaway-delivered ore from Labrador and Quebec. And there are signs of increasing activity in oil, chemicals, and other industrial sectors in the area.

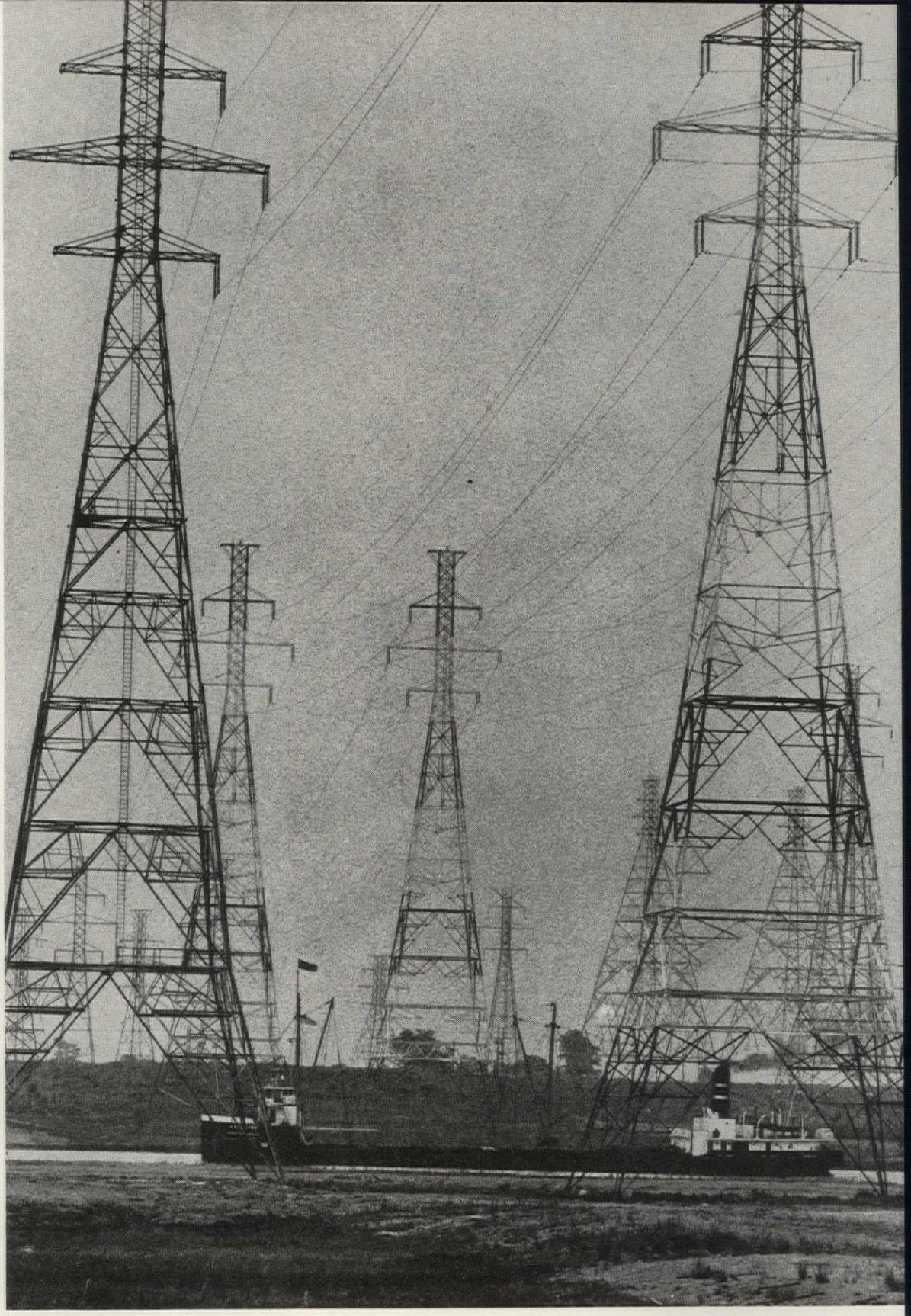
But it is the revolution in cargo handling that holds the greatest promise for industrial and urban expansion in the American heartland, for cargo handling is the new technological link between all the transportation services, including the seaway. Cargo is beginning to be so contained that it passes swiftly and easily from one medium—land, air, water—to another. For example, the truck trailer arrives dockside riding piggyback on a railroad car for further movement fishyback on a Great Lakes ship bound for ocean ports via the seaway. This physical integration of railway, motor truck, and waterway is rapidly leaving the novelty stage. Integration is the keynote, motivated by an ever more insistent need for automatic, rapid, cheaper cargo handling. What may be expected in the near future is an extension to transportation of something like the packaging revolution in retail trade. Everything will be packaged in large standardized containers of various sizes that are interchangeable on all the various carriers—trucks, trains, planes, ships, barges —to effect great reductions in time, loss through pilferage, and labor handling charges.

Eighth Sea ports

Once this transportation revolution runs its course, literally no major area of the country will remain landlocked. For the new transport integration is twofold: both technical and geographic. The seaway will intermesh with the amazingly revitalized (by the diesel engine) inland waterway system, the giant interstate highway system, the truck lines, the railways and airways. For instance, foreseeing the seaway's effects, the Army Corps of Engineers already is planning to deepen inland river channels 2,000 miles away from the seaway: increasing the depth of the Mississippi from its present 9 feet to 12 feet near St. Louis in anticipation of burgeoning Illinois waterway traffic when large ocean vessels can reach Chicago.

To be competitive with established ocean ports, the lake cities will, of course, have to duplicate the ocean ports' modern facilities. This means building such things as backup warehouses, mechanized wharves, rail and heavy-lift facilities. To mesh into the new transport network, which may well be the lake ports' deciding advantage, will require additional miles of highway feeder routes, plus substantial acreage and buildings to service trucks within harbor areas. Indeed, motor transport route patterns may well be changed throughout the northeast, and for urban building

continued on page 184



Above the path of the new Seaway hang electrical cables describing the other aspect of this gigantic project: power generation.

Gallery

The Seaway takes shape

Although the building boom at the mid-western end of the St. Lawrence Seaway may be a hidden one (page 98), construction along the river itself is obvious and dramatic—as the pictures on these pages attest.

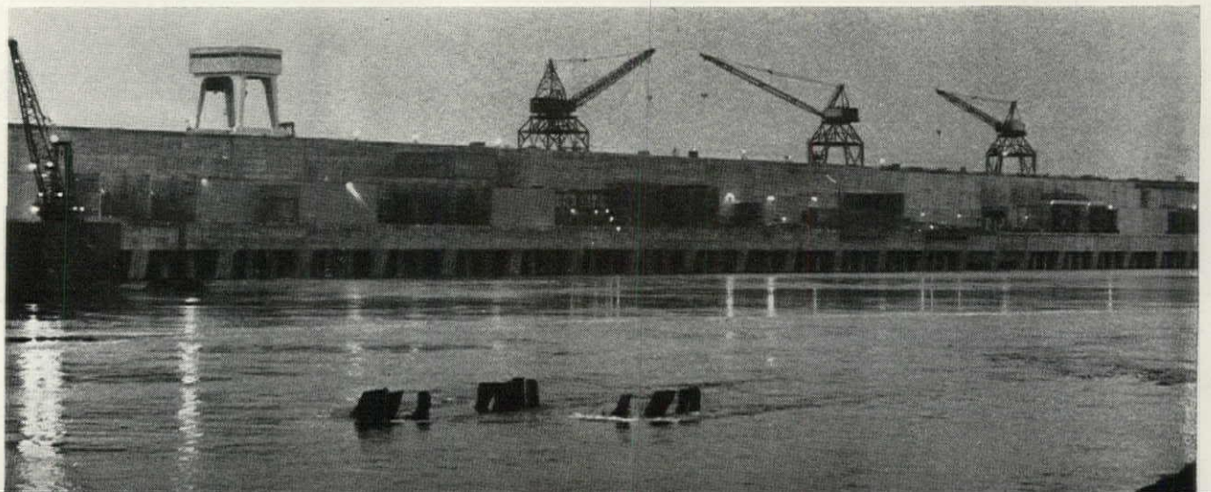


St. Lawrence Power Dam at Barnhart Island near Massena, New York, is the biggest single fortification in the campaign to domesticate the St. Lawrence. Built in partnership by New York State and Ontario it will rank as the world's second largest hydro-electric power plant (Grand Coulee is first.)

Long Sault Spillway Dam, 114 feet high, four miles upstream, was built by the U.S. as a subsidiary to the big dam at Barnhart Island, to help control the water level downstream.

High level bridge under construction near Massena illustrates another specification of the new ship route: 120 feet of vertical clearance. Seaway and power projects themselves are administered and financed separately, together will cost a total of about $1 billion to build.

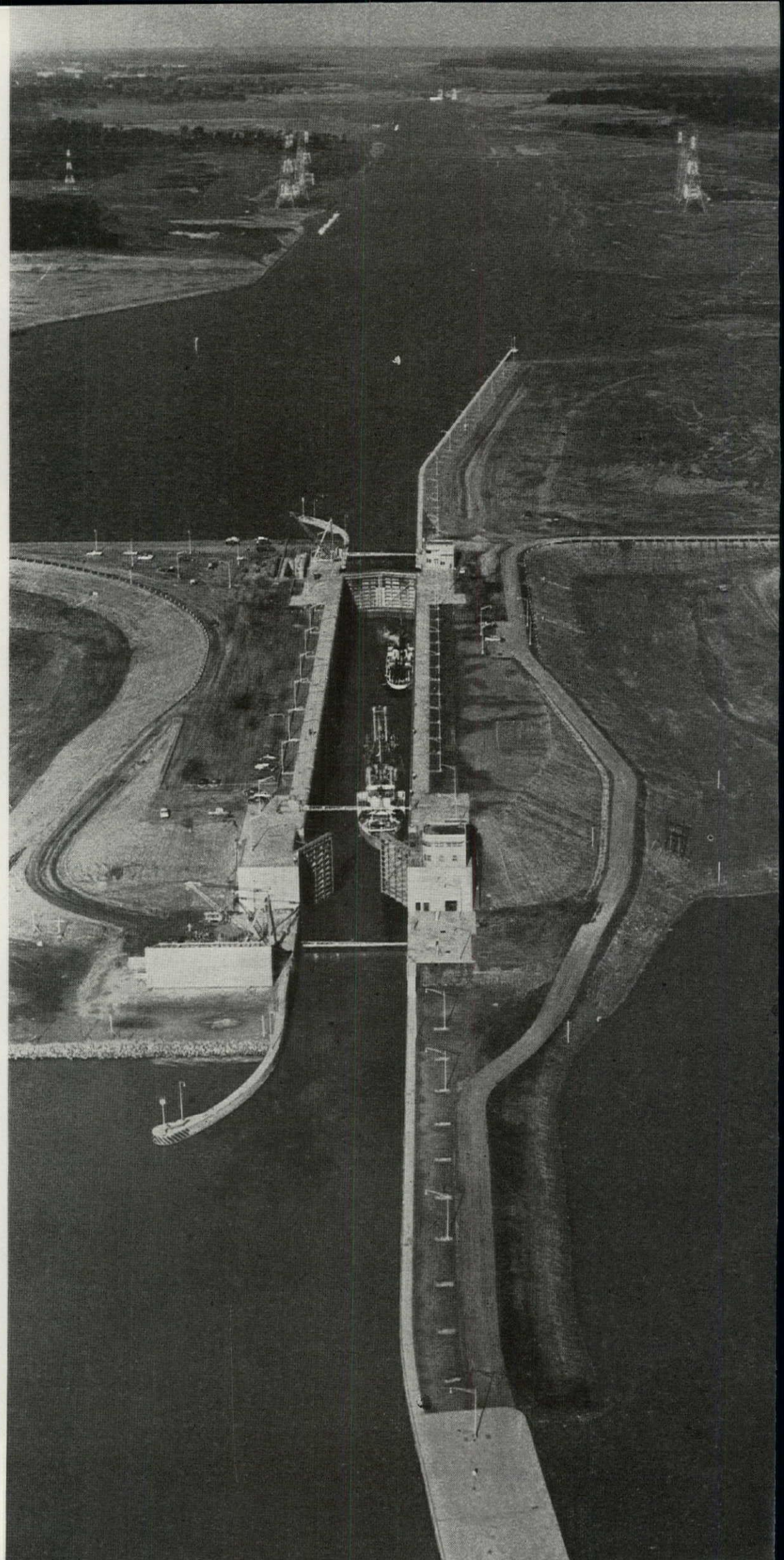
St. Lawrence Power Dam (below) a straight-line concrete gravity dam, is 3,300 feet long, 167 feet high and has a maximum power head of about 87 feet driving 32 turbine-generator units which can develop 88,800 horsepower each. Full power production is expected by the end of 1959.





PHOTOGRAPHS BY ERICH HARTMANN





Bertrand H. Snell Lock is one of the seven new elevators between Montreal and Ogdensburg, New York, which—with existing locks—will eventually permit ocean ships to ascend from the tidewater end of the St. Lawrence to Lake Superior, 602 feet above sea level. END

Multifamily starts lead this year's building upturn. Here are the reasons why—and six projects that pace the field in design.

The rise in apartments

BY RICHARD A. MILLER



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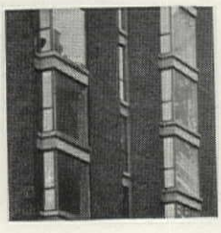
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After reporting the frustrations of sporting life in the suburbs, Author Jerome Weidman, writing in SPORTS ILLUSTRATED, tells of overhearing two of his neighbors talking on the station platform: "What they are saying is extremely interesting," writes Weidman. "To me, at any rate. I, too, have just discovered that finding an apartment in town these days is going to take quite some considerable doing."

Except for the remarkable circumstance of such an observation occurring in an article on sports, the comment is not uncommon. For, indeed, the big problem for those elements of the population who decide that owning a single-family house is not for them is finding a suitable alternative.

But if the present pace of apartment construction continues—and there are indications that it may actually increase—there is a prospect of relief. For, during the first third of 1958, privately owned apartment building paced the upturn in building generally and continued the rise from a lull in the early 1950's (after the FHA Section 608 program had expired). This year's increase, which ran 38 per cent over 1957 in the first third of the year (47,300 unit starts compared to 34,200 in the first third of 1957), was the largest increase to date.

Actually, however, multifamily building starts still represent less than 16 per cent of the total number of public and private housing starts. Moreover, the increase has, in general, been confined to the upper and upper-middle income market.

This year's upturn in *quantity* was matched by an upturn in *quality*—albeit confined to a few examples. Six of these projects, ranging in size from the 1,120-unit Kips Bay project in Manhattan to a three-unit building near San Francisco, are glimpsed at the left and are shown in some detail on the following pages.

From these projects—and some 50 others reviewed by FORUM—certain definite design trends can be noted:

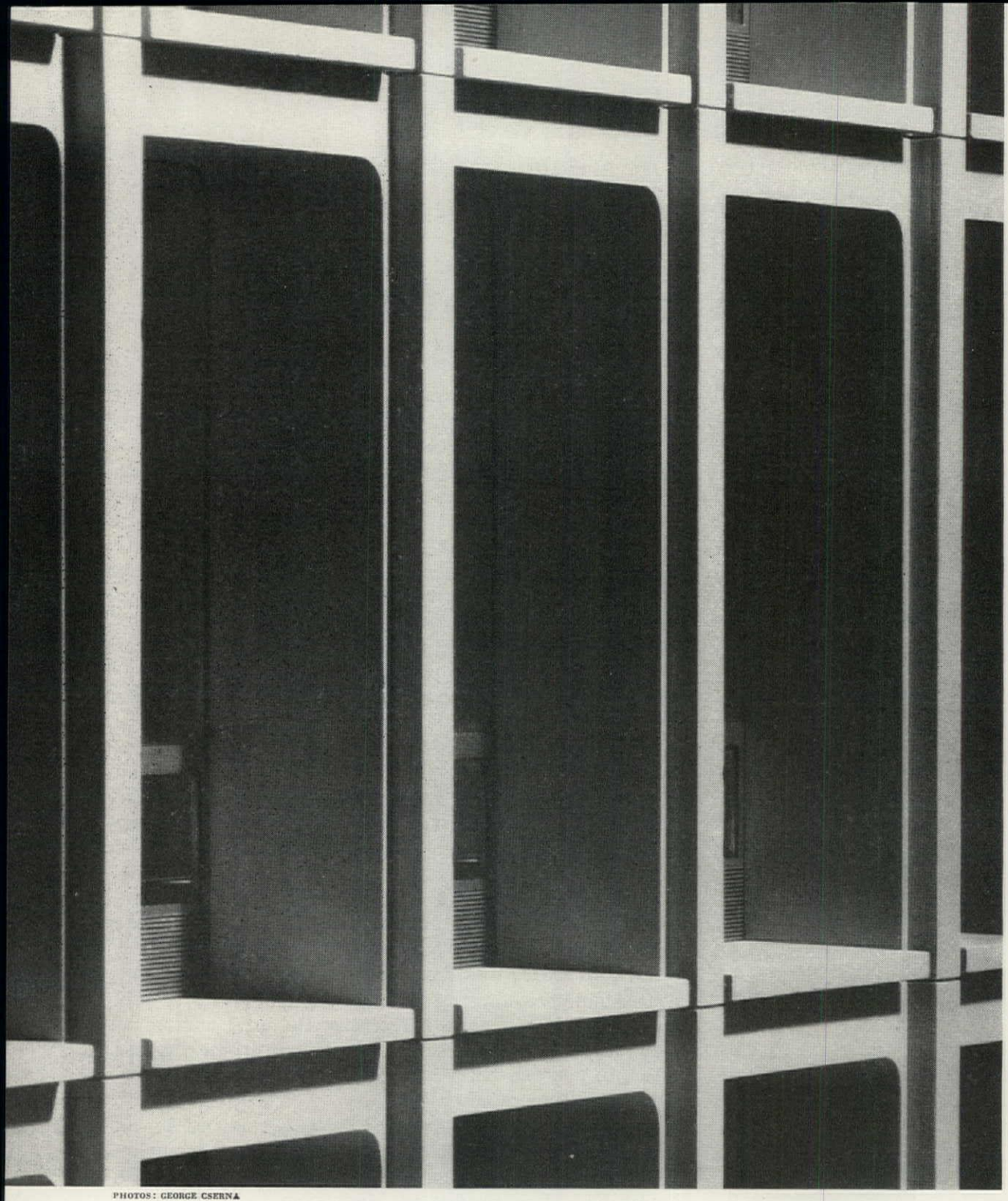
▸ In luxury buildings, the trend is toward central air-conditioning systems. Most projects provide, at the minimum, wiring for tenant-installed room conditioners.

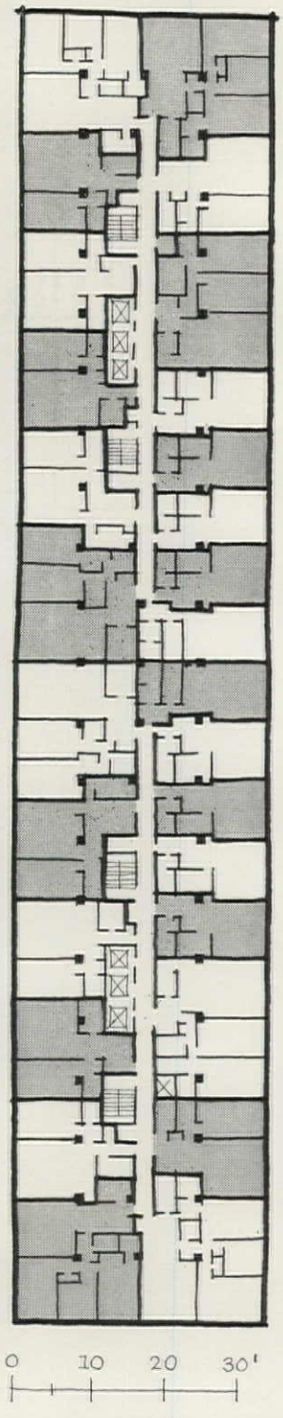
▸ Because of air conditioning, the trend is away from balconies, except in warm climates. There, the small, "open bureau-drawer" type is giving way to a larger balcony behind the façade of the building.

▸ Large glass window walls, once considered a rental liability, are gaining acceptance everywhere.

▸ Apartment unit plans tend to be more open and more varied. Architects are beginning to push for larger, more simply shaped rooms, but they are still meeting resistance from developers and other "experts."

▸ Efficiency and one-bedroom units remain most com-





PHOTOS: GEORGE CSERNA

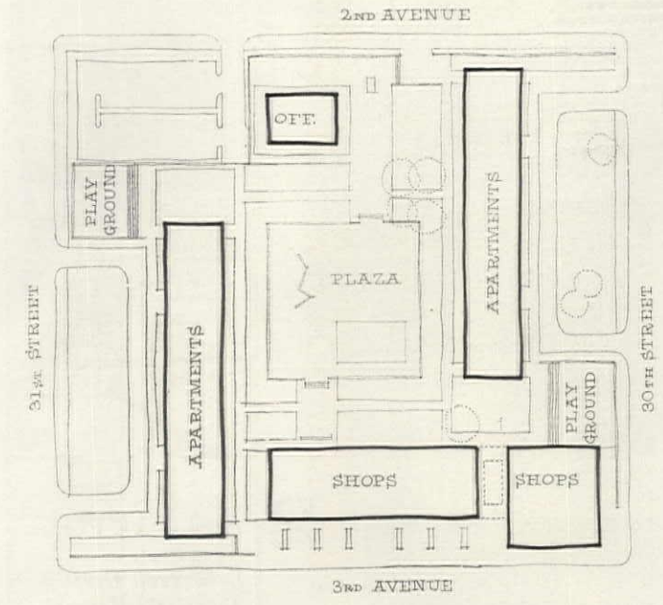
mon, with some balancing-out in large three- and four-bedroom apartments.

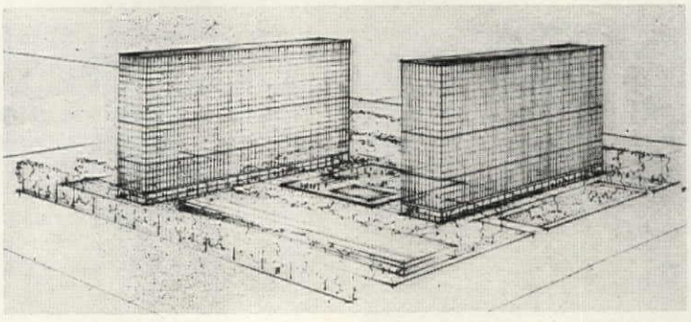
▸ Luxury buildings are offering more services, more amenities, with swimming pools becoming quite common.

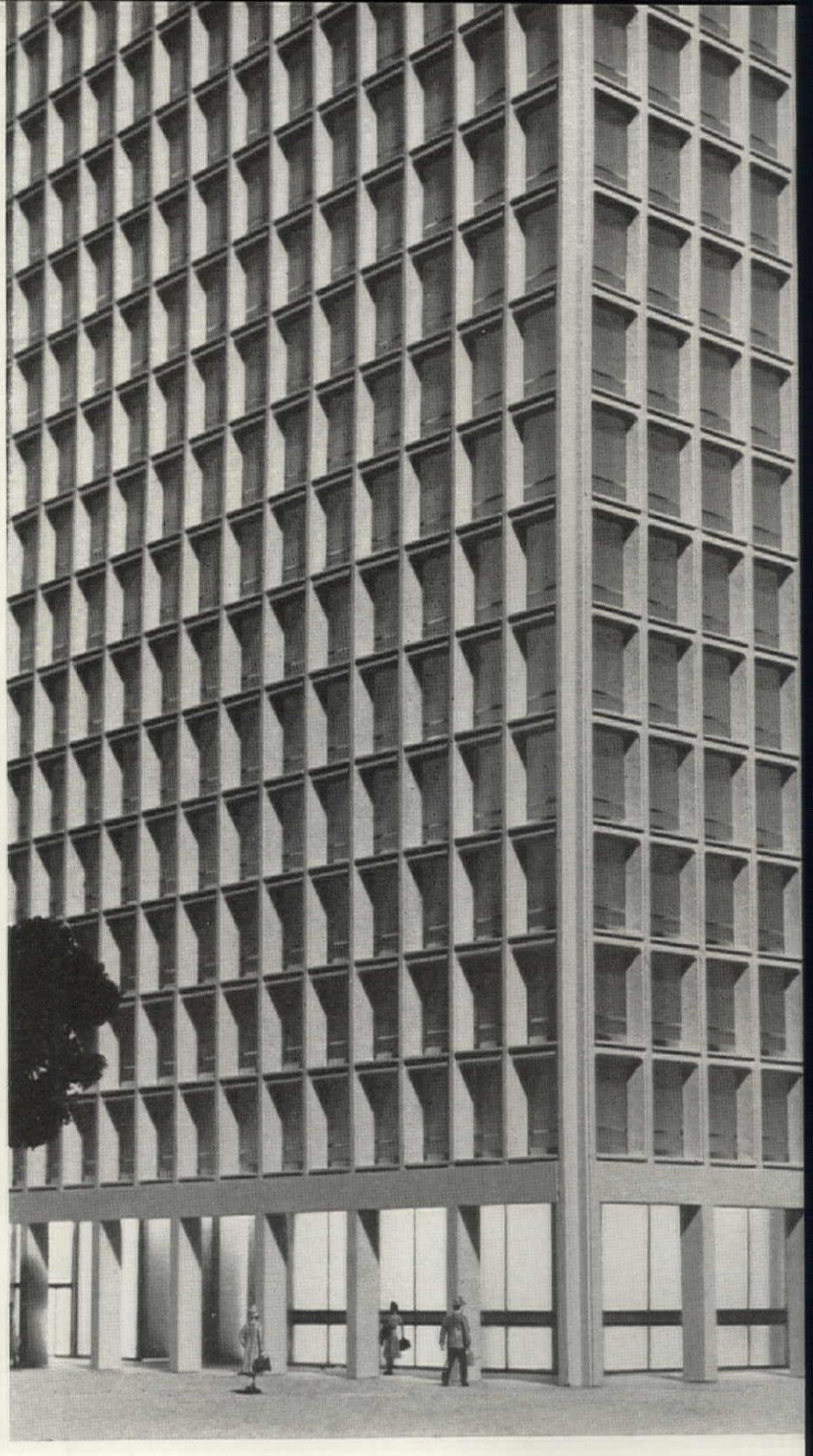
▸ Imagination in kitchen and bath planning still tends to be minimal—far below the equivalent in the single-family house. Prediction: the next big development will occur in these rooms.

However strong the demand for upper- and upper-middle-income housing may be, this year's upturn owes more to FHA policy and Internal Revenue law than to the market itself. FHA, in fact, absorbed most of the construction increase in its mortgage insurance program. Twenty-three per cent of this year's starts were FHA-insured, compared to 13 per cent in the same period last year. The primary FHA encouragement was a recent increase of maximum insurance limits to 90 per cent of appraised fair market value under Section 207, and a change from *fair market* appraisal to *replacement cost* appraisal under Section 220 (urban renewal) and 213 (cooperatives).

Another incentive to apartment building has been the change in the Housing Act of 1956 which made it mandatory to allow a 10 per cent margin of profit and overhead in FHA appraisals to sponsors of "220" projects who are also the builders. (Previously the margin was optional with FHA regional offices—and they seldom allowed the limit). A third incentive is just now coming into play. This allows an increase of up to $1,000 per room to statutory mortgage limits ($2,700 per room for







1 *Kips Bay Park, New York, N. Y.*
Developer: Webb & Knapp, Inc.
Architect: I. M. Pei & Associates.
Associate: S. J. Kessler & Sons.

Replacing three blocks of East Side Manhattan slums, this urban renewal project will provide 1,120 apartments in two 20-story buildings flanking a raised plaza. The final design shown here includes a shopping center (bottom of plan above) and a medical office building (top). The concrete framework of the buildings with large floor-to-ceiling glass panels set in deep, sun-shading reveals, is based on a 5 foot 8 inch module fitted to FHA room-size requirements. Rents will range upward from $125 per month for a studio apartment and $280 for a three bedroom unit. Air conditioning will be available for an additional charge.

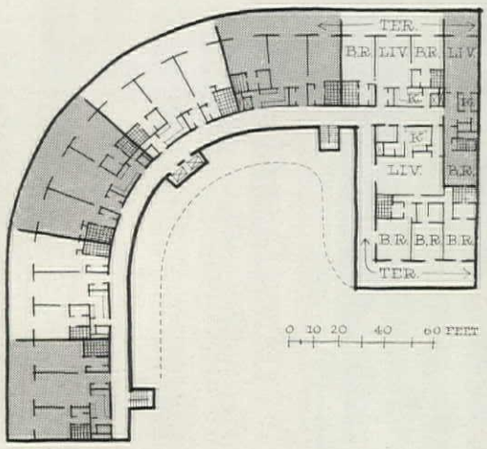
elevator buildings having an average room count of four) in certain high construction cost areas such as New York, Washington, Chicago, and Los Angeles.

Naturally, these changes would serve to increase starts and turn the market away from noninsured mortgages. By state law, banks and insurance companies (which provide the bulk of financing for multifamily projects) must limit their mortgages to two-thirds of the project cost unless the project is FHA insured. The new FHA rules make it possible for many developers to come near "mortgaging out" with the owners providing only short-term working capital.

The contribution of the Internal Revenue Service was a change in the 1954 law which had a delayed response this year: the so-called "double depreciation" allowance. Under its provisions, a developer in figuring his net income for tax purposes can usually deduct for depreciation at twice the actual mortgage amortization rate. In addition to decreasing his net profit in the early years, this law allows capital borrowed on a project to be used in a builder's capital account for several years before it is returned to the lender.

But these incentives are at least partially offset by the fundamental drawback to rental housing, which, in effect, causes rental income to be taxed twice (FORUM, June 1958), once as income of the tenant and once as income of the landlord.

This is one of the reasons for the noticeable trend to cooperative apartments. When the tenants own a building, they can deduct their share of interest and real







PHOTOS: VAN DURAND

2 *Park Place*
Palm Beach, Florida.
Developer:
Lake Trail Development Co.
Architect: Howard Chilton.

Main features of this $2 million, 42-unit cooperative apartment on Lake Worth are the 12 foot wide terraces which stretch across each apartment front and the swimming pool in the back court. A two-bedroom apartment sells for $50,000 to $60,000. Monthly carrying charges are $150 to $175.

3 *3525 Turtle Creek*
Dallas, Texas.
Developer:
Dicker-Frank & Assocs.
Architect: Howard R. Meyer.

This $5.8 million, 22-story building embraces 102 apartments behind its sun-shading façade of concrete grilles. Rents, which include central air conditioning plus swimming pool privileges and a social club membership, start at $350 for a one-bedroom unit. Apartment shown is Architect Harwell Hamilton Harris'.

estate taxes in figuring their personal income taxes. At the same time, the builder can take his profit when the project is finished rather than wait for a return on it as rental income. And, if the builder chooses to operate the project as a rental project for a period of time before selling it to a cooperative, he might be able to take his construction profit as a capital gain, thus reducing the tax bite by 50 per cent or more.

Although all of these incentives are stimulating apartment construction, they also complicate big projects to such an extent that design becomes a secondary factor. More often than not, design is determined not only by the complexity of FHA rules and appraisals, but by the sometimes superficial impressions that real estate experts, apartment house builders, and mortgage officers have of the market. The business is, in fact, so complex that it has created a whole group of specialist architects, builders, and investors who confine their activity to apartments. The result is that most multifamily projects are stereotyped—designed by rules of thumb, prevailing prejudices, and FHA room counts.

Very often, the manner in which a "deal" is put together will be determined while the building is being designed. Indeed, one architect claims that it is impossible to design a good apartment house without knowing from the start whether it is to be FHA financed or not. Seldom, however, can such a determination be made at the start, to say nothing of a settlement of all the other factors which affect the design.

The difficult part of this "design by negotiation" is



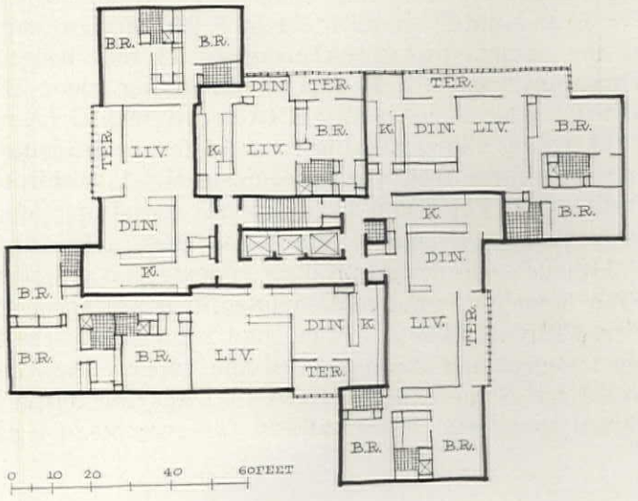




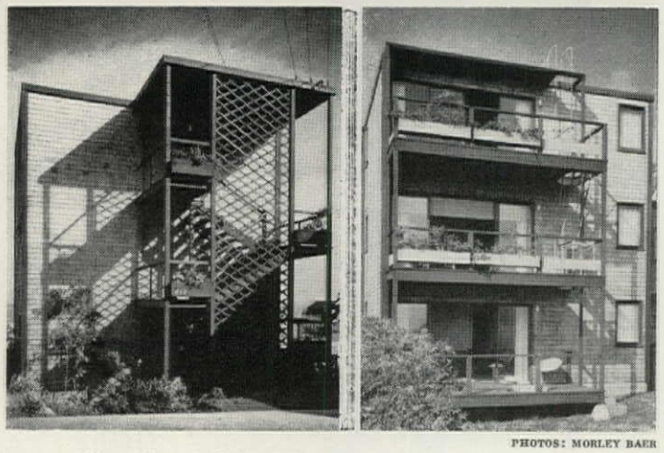
PHOTOS: IVAN MASSAR—BLACK STAR

in not being able to grasp the entire program or the essential design problems until the working drawings are complete and the project is in construction. Then, it is too late for real architecture. Some architects develop a basic plan (which is the primary consideration in the "deal") without considering structure or architectural appearance. Once the plans are settled, the columns are tucked in wherever they can be located, and the appearance goes by default. If a flat-slab floor system is used, this planning technique can result in decent interior space, but, where a steel beam and column system is used, the chaos of structural beams across the ceiling surfaces can make the rooms unpleasant.

A more satisfactory technique for dealing with this dynamic design problem is the use of a basic unit in



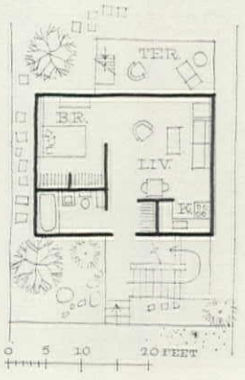


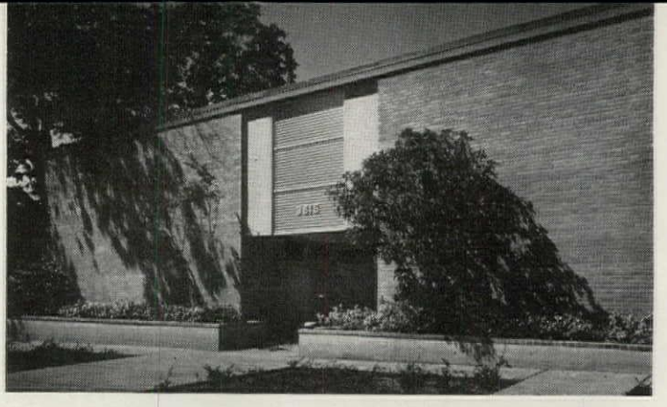


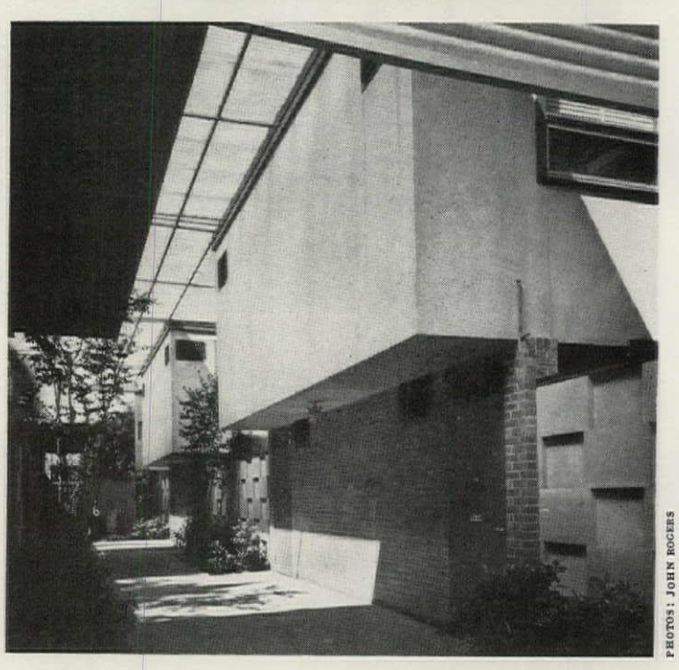
PHOTOS: MORLEY BAER

4 *Sausalito, California.*
Developer:
Bartlett & Campbell.
Architect: Campbell & Wong.

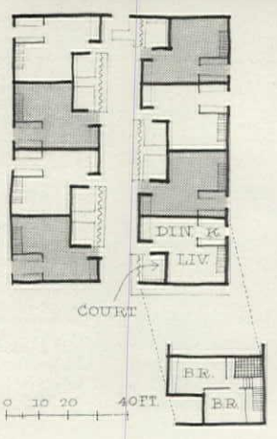
Each of the three apartments in this small structure overlooking San Francisco Bay has a separate sleeping alcove in a basically one-room plan, and each has a balcony off the living area. Total cost of the building, including land, fees, and furnishings was $23,500. Apartment rents range from $95 to $105 per month.







PHOTOS: JOHN ROGERS



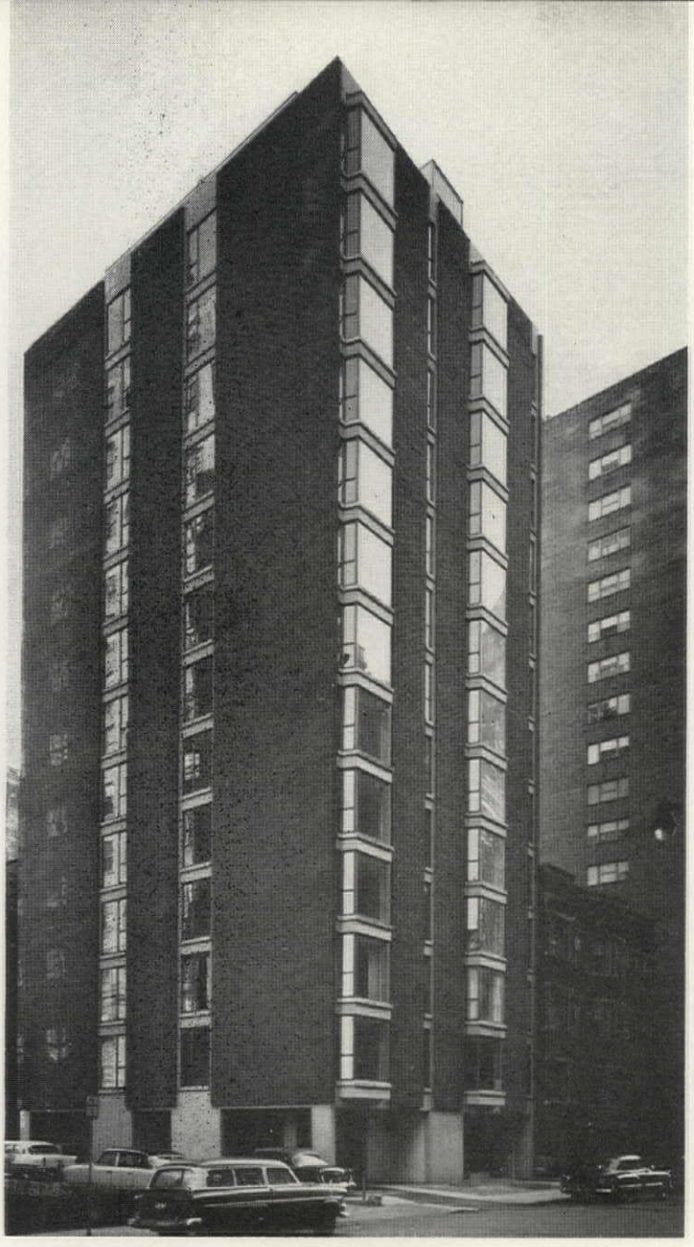
5 *3615 Gillespie*
Dallas, Texas.
Owner and designer:
Walter Carruth.

Eight duplex units are arranged along an open corridor in this court-plan building. Each apartment has a 10 foot square landscaped court and all windows in the air-conditioned unit face this court. The ingenious plan has a high degree of privacy from unit to unit. The two-bedroom apartments rent for $155.

the design. At Kips Bay (page 107) Architects I. M. Pei & Associates set up a 5 foot 8 inch design module at the outset. Two units make an 11 foot bedroom. Three units make a 16 foot 8 inch living room. Both of these dimensions satisfy FHA requirements. (A new FHA ruling allows a living room 16 feet wide, containing 260 square feet, a room count of two.) Within this framework, Pei found flexibility for satisfying apartment-plan requirements established later.

Although the design problem is somewhat simpler if FHA financing is not contemplated, it is not *much* simpler. Many architects, in fact, find FHA appraisers the most logical and reasonable of the experts they have to satisfy. Some experts advise that apartments be designed to satisfy the rental ads, for example. (A door is put on a kitchen too small to be a separate room merely to allow the ads to claim that it is.) Some apartments are even designed to satisfy the personal prejudices of mortgage officers ("I like an arch between the living room and dining alcove").

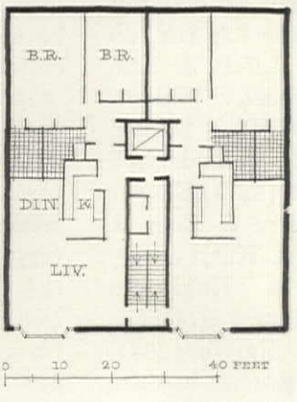
Fortunately, there are, in this year's boom, a few examples of FHA projects which are not designed for the least common denominator; there are some luxury projects which do not depend on googie and gazebos to draw higher rents and there are some projects which offer amenities and diversity to draw an increasingly discriminating market. These projects offer the hope that the suburbanite who finds his way back to an apartment in town will not soon be wistfully recalling the glories of the single-family suburban house.



6 *227 E. Walton Place*
Chicago, Illinois.
Developer:
Baird & Warner.
Architect:
Harry Weese & Associates.



PHOTOS : HEDRICH-BLESSING



To obtain a view up and down the street for its apartments, this 24-unit building adopts the theme of the bay window. The plan makes maximum use of a small and valuable site on the north side of Chicago by stacking two apartments on each of its 12 floors. Ground-floor space is devoted to a small entrance lobby and a superintendent's apartment. Driveways lead to a rear-lot parking area and a below-grade garage. The $900,000 project rents its apartments for $300 to $360 per month.

END



One hundred offices handle almost 10 per cent of all the building design in the U. S.

Architecture's biggest firms

Nearly one-tenth of all the new construction in the U.S. last year was accounted for by just 100 architectural and architectural-engineering firms. That is the finding of a unique FORUM survey which confirms that while architecture is primarily an art, it is also a business that is stamped indelibly with the American cachet of bigness. The 100 firms listed on the facing page and overleaf were responsible for a mammoth $4.4 billion of new construction in 1957, or 9.1 per cent of the total $48.5 billion that was spent on new building of all kinds. Yet these firms represented only 1 per cent of the estimated 9,800 architectural offices in the country.

FORUM's ranking, which is the first ever to apply a financial gauge to architectural firms, is derived from questionnaires to 270 leading volume architects. The list is not intended as a guide to the best qualified architects although many are, of course, represented. In this list, to a lesser degree than in any other list in this series, can top ranking by volume be equated with influence and quality. First, it is axiomatic that "genius never gets paid": the genius architect gets no higher fee than his fellow professionals, including the duds; nor does the talented designer necessarily compensate through added volume, because he is likely to hold his own volume down. Second, a listing such as this can be based only on the dollar volume of new construction put in place that is claimed by the various firms.* More meaningful data of actual fees received for architectural work done are impossible to get. Therefore firms whose work lies heavily in speculative building, an area of low fees and quick repetitive design, rub shoulders in the rankings with firms that work primarily on high-fee, meticulously conceived, institutional buildings. Further, it is likely that not all firms which qualify for the list are included. Apart from the possibility that some offices have been overlooked, 13 firms refused to cooperate in the survey. And of these at least four—Pereira & Luckman, Edward D. Stone, Walter Butler Co., and Graham, Anderson, Probst & White—probably rank among the top 100.

By far the biggest firm to appear on the list is Detroit's Giffels & Rossetti. Its $250 million of construction put in place last year was almost two-thirds greater than the $150.7 million of second-ranking Skidmore, Owings & Merrill and the $150 million of Daniel, Mann, Johnson & Mendenhall.

The directory also shows that:

▸ Ten firms individually handled more than $100 million of construction in 1957; another 18 from $50 to $100 million; and 29 others from $25 to $50 million.

▸ Based on number of employees, the largest individual firm is Skidmore, Owings & Merrill, with a staff of 1,066. Others in the top ten, on an employee basis: Giffels & Rossetti (850), Voorhees, Walker, Smith & Smith (550), Daniel, Mann, Johnson & Mendenhall (480), Welton Becket (427), Ellerbe & Co. (290), Holabird & Root & Burgee (290), Albert Kahn Associated Architects & Engineers (290), Smith, Hinchman & Grylls (287), and Albert C. Martin (264). There are wide divergencies in ratio of staff size to volume of construction handled: in the extreme case one firm showed an amount of construction per staff member 13 times as high as the ratio in another firm doing comparable volume.

▸ Forty-eight firms, or nearly half of those listed, are located in just five cities—New York (20), Los Angeles (9), Chicago (8), Detroit (6), and Philadelphia (5).

▸ Of the total $4.4 billion of construction represented by the 100 firms, about one-fifth is industrial building, a fifth is office building, and another fifth educational building. Hospital and institutional construction represents about 13 per cent of the total, while a varied assortment of "other" building makes up a remaining 29 per cent.

▸ Of 95 firms which made specific estimates of their work for 1958, as well as for 1957, 52 expect to do more work this year than last. Of the rest, 30 feel their volume will decrease, while 13 foresee no change. In the main, the 1958 figures indicate that there is likely to be considerable shuffling in the rankings of the top 100 from year to year (for instance, if estimates hold, Daniel, Mann, Johnson & Mendenhall will be the No. 1 firm in 1958, while Skidmore will not even appear among the top ten in volume). However, the list as a whole is certain to be more stable than that of the architects' 100 biggest clients (FORUM, August 1958).

A list of building's biggest contractors will appear in the November issue, supplementing this list of the biggest architects and last month's list of the industry's biggest customers. A combined reprint of the three lists may be had after November 1 for 25¢ each prepaid.

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* Dollar figures shown for each firm are estimated on-site expenditures for materials and services designated by that firm. Claims to projects are based on architectural and/or engineering design, and the amounts reported reflect no distinction between architectural and engineering work. Projects involving several architects in association are divided on a prorata basis according to the ratio of fees received.

	Firm	Construction put in place		Type of construction put in place as a per cent of 1957 volume					Employees
		1957 ($000)	1958 (est.) ($000)	Industrial	Office	School	Hospital & Institution	Other	
1	Giffels & Rossetti (Detroit)	**250,000**	190,000	60	10	9	6	15	850
2	Skidmore, Owings & Merrill (New York)	**150,700**	74,200	6	30	19	7	38	1066
3	Daniel, Mann, Johnson & Mendenhall (Los Angeles)	**150,000**	200,000	10	23	20	7	40	480
4	Eggers & Higgins (New York)	**130,000**	130,000	2	30	30	28	10	245
5	Erwin Gerber & A. Pancani Jr. (Newark)	**110,000**	150,000	8	3	0	11	78	78
6	Emery Roth & Sons (New York)	**110,000**	135,000	0	90	7.5	0	2.5	58
7	Albert Kahn Assoc. Archts. & Engrs., Inc. (Detroit)	**108,000**	N.A.	78	19	1.5	1.5	0	290
8	Welton Becket & Assocs. (Los Angeles)	**104,750**	130,000	8	36	12	24	20	427
9	Perkins & Will (Chicago)	**102,582**	158,000	1	15	83	0	1	187
10	Norman M. Giller & Assocs. (Miami Beach)	**101,000**	60,000	5	10	5	2	78	62
11	Leo A. Daly Co. (Omaha)	**100,000**	130,000	10	15	20	10	45	250
12	George M. Ewing Co. (Philadelphia)	**99,500**	70,000	39	2	24	19	16	200
13	Harrison & Abramovitz (New York)	**98,000**	125,000	0	60	11	17.5	11.5	160
14	A. Epstein & Sons, Inc. (Chicago)	**80,000**	80,000	40	23	2	7	28	150
15	Kahn & Jacobs (New York)	**80,000**	70,000	15	60	10	10	5	98
16	Voorhees, Walker, Smith & Smith (New York)	**77,099**	90,000	3	45	5	15	32	550
17	Smith, Hinchman & Grylls Assocs., Inc. (Detroit)	**74,934**	80,000	10	5	5	70	10	287
18	Kelly & Gruzen (New York)	**70,000**	N.A.	1	1	40	5	53	95
19	J. E. Stanton & William F. Stockwell (Los Angeles)	**70,000**	30,000	0	15	30	0	55	95
20	S. J. Kessler & Sons (New York)	**60,000**	60,000	10	5	15	0	70	42
21	J. E. Sirrine Co. (Greenville, S.C.)	**60,000**	40,000	95	0.4	3	0.8	0.8	250
22	A. M. Kinney Assocs. & affiliates (Cincinnati)	**59,500**	80,000	32	6	6	4	52	235
23	Adrian Wilson & Assocs. (Los Angeles)	**58,000**	45,000	15	15	10	15	45	195
24	Arthur Froehlich & Assocs. (Beverly Hills)	**54,600**	25,000	0	0.8	0.8	0	98.4	65
25	H. A. Kuljian & Co. (Philadelphia)	**52,100**	45,000	67	6	8	8	11	160
26	Reynolds, Smith & Hills (Jacksonville)	**50,216**	35,000	14	0	5	24	57	195
27	Victor Gruen Assocs. (Los Angeles)	**50,000**	70,000	10	20	5	5	60	150
28	John C. Lindsay & Assocs. (Santa Monica)	**50,000**	50,000	20	25	20	5	30	41
29	Schmidt, Garden & Erikson (Chicago)	**49,000**	45,000	20	0	10	70	0	137
30	Hudgins, Thompson, Ball & Assocs. (Oklahoma City)	**47,500**	50,000	24	8	25	6	37	197
31	Hayes, Seay, Mattern & Mattern (Roanoke)	**46,000**	50,000	10	4	19	37	30	130
32	Albert C. Martin & Assocs. (Los Angeles)	**45,737**	35,000	15	5	10	20	50	264
33	Harley, Ellington & Day, Inc. (Detroit)	**45,000**	60,000	30	5	20	10	35	183
34	Sargent, Webster, Crenshaw & Folley (Syracuse)	**45,000**	45,000	8	7	70	5	10	181
35	Frank Grad & Sons (Newark)	**41,760**	45,295	20	24	4	2	50	111
36	Holabird & Root & Burgee (Chicago)	**40,000**	49,500	26	20	20	5	29	290
37	Naramore, Bain, Brady & Johanson (Seattle)	**40,000**	40,000	30	0	25	25	20	100
38	Frederic P. Wiedersum Assocs. (Valley Stream, N.Y.)	**39,299**	45,000	0	1	97	1	1	138
39	Toltz, King, Duvall, Anderson & Assocs., Inc. (St. Paul)	**38,000**	38,000	24	0	23	30	23	101
40	Ellerbe & Co. (St. Paul)	**35,000**	35,000	20	15	20	30	15	290
41	Robert & Co. Assocs. (Atlanta)	**35,000**	40,000	15	30	13	6	36	235
42	John S. Bolles (San Francisco)	**32,500**	21,000	72	9	6	1	12	40
43	Lublin, McGaughy & Assocs. (Norfolk)	**32,500**	40,000	3.1	4.6	30.8	6.1	55.4	208
44	Six Assocs., Inc. (Asheville, N.C.)	**32,350**	N.A.	12	4	14	10	60	62
45	Naess & Murphy (Chicago)	**32,000**	35,000	13	54	17	0	16	143
46	J. N. Pease & Co. (Charlotte)	**32,000**	40,000	15	10	5	10	60	110
47	Pace Assocs. (Chicago)	**31,530**	50,800	19.4	5.9	3.9	59.4	11.4	150
48	Gehron & Seltzer (New York)	**30,000**	28,000	0	0	63	29	8	38
49	Vincent G. Kling (Philadelphia)	**30,000**	39,000	10	30	25	20	15	85
50	Meriwether, Marye & Assocs. (Lexington, Ky.)	**30,000**	30,000	0	0	25	65	10	31

NOTES: This list does not include so-called package-building firms, which combine design with construction. N.A. means data not available. "Other" includes housing, hotels, churches, stores, banks, research laboratories, public buildings, recreational facilities, garages, and civil engineering projects.

	Firm	Construction put in place 1957 ($000)	Construction put in place 1958 (est.) ($000)	Type of construction put in place as a per cent of 1957 volume: Industrial	Office	School	Hospital & Institution	Other	Employees
51	LaPierre, Litchfield & Partners (New York)	**29,250**	18,000	0	5	25	0	70	78
52	Fellheimer & Wagner (New York)	**29,000**	25,600	51	18	15	5	11	108
53	Paul R. Williams (Los Angeles)	**27,350**	63,000	0	50	10	10	30	42
54	George L. Dahl (Dallas)	**25,984**	50,000	20	20	20	20	20	93
55	Grassold-Johnson & Assocs. (Milwaukee)	**25,500**	11,680	1	5	20	19	55	59
56	Mills, Petticord & Mills (Washington)	**25,000**	30,000	3	25	10	0	62	112
57	Stone, Mulloy, Marraccini & Patterson (San Francisco)	**25,000**	15,000	0	33	0	67	0	57
58	Thalheimer & Weitz (Philadelphia)	**25,000**	25,000	25	12.5	12.5	25	25	50
59	Ferrenz & Taylor (New York)	**24,500**	33,500	0	0	20	70	10	72
60	Sherlock, Smith & Adams, Inc. (Montgomery)	**23,769**	27,000	5	6	15	45	29	110
61	Kistner, Wright & Wright (Los Angeles)	**22,500**	30,000	0	3	75	0	22	170
62	John Graham & Co. (Seattle)	**22,396**	25,000	2.1	6	0.8	6	85.1	200
63	Perry, Shaw, Hepburn & Dean (Boston)	**21,622**	22,413	7	10	75	2	6	47
64	Sorey, Hill & Sorey (Oklahoma City)	**21,500**	20,000	3.5	71	14	0	11.5	49
65	H. F. Beyster & Assocs., Inc. (Detroit)	**21,085**	18,977	35	15	25	20	5	79
66	Bellante & Clauss (Scranton)	**21,000**	100,000	10	5	20	5	60	150
67	Raymond Ervin & Assocs. (Denver)	**20,000**	N.A.	5	60	5	0	30	18
68	The McPherson Co. (Greenville, S.C.)	**20,000**	30,000	53	2	3	30	12	84
69	Eero Saarinen & Assocs. (Bloomfield Hills, Mich.)	**20,000**	30,000	30	0	35	10	25	75
70	Eberle M. Smith Assocs., Inc. (Detroit)	**20,000**	23,000	7	5	70	3	15	95
71	Urbahn, Brayton & Burrows (New York)	**20,000**	30,000	0	0	40	20	40	90
72	Vonnegut, Wright & Porteous Inc. (Indianapolis)	**20,000**	25,000	0	20	40	0	40	26
73	Lankton, Ziegele, Terry & Assocs. (Peoria)	**19,924**	24,000	20	10	20	30	20	118
74	MacKie & Kamrath (Houston)	**19,500**	18,500	17	33	10	10	30	49
75	John W. Maloney (Seattle)	**19,325**	25,902	0	0	22	66	12	78
76	Wurster, Bernardi & Emmons (San Francisco)	**18,560**	35,000	1	50	0	1	48	60
77	Hunter, Campbell & Rea (Altoona, Pa.)	**18,354**	25,000	3.7	0.9	88.1	7.3	0	90
78	Sylvan Bien & Robert Bien (New York)	**18,000**	N.A.	0	50	0	0	50	15
79	Carson & Lundin (New York)	**18,000**	30,000	0	99	1	0	0	70
80	Moore & Hutchins (New York)	**18,000**	18,000	0	0	92	0	8	34
81	Abbott, Merkt & Co., Inc. (New York)	**17,800**	12,000	30	0	0	0	70	95
82	Shaw, Metz & Dolio (Chicago)	**17,675**	15,000	53	25	3	4	15	143
83	Louis C. Kingscott & Assocs., Inc. (Kalamazoo)	**17,316**	23,000	8	12	65	5	10	107
84	Office of Douglas Orr (New Haven)	**17,200**	9,000	0	64	15	9	12	22
85	Shreve, Lamb & Harmon Assocs. (New York)	**17,000**	20,000	15	56	3	0	26	58
86	Anshen & Allen (San Francisco)	**16,786**	20,242	7	2	1	2	88	30
87	The Ballinger Co. (Philadelphia)	**16,700**	19,000	40	5	35	20	0	92
88	Young, Richardson & Carleton (Seattle)	**15,900**	19,000	54	8	6	19	13	54
89	Richard Hawley Cutting & Assocs., Inc. (Cleveland)	**15,603**	23,000	35	10	10	5	40	91
90	Wirtz, Calhoun, Tungate & Jackson (Houston)	**15,575**	13,500	1	34	25	40	0	23
91	Palmer & Krisel (Los Angeles)	**15,540**	30,000	0	0	0	0	100	15
92	Alonzo J. Harriman, Inc. (Auburn, Me.)	**15,500**	22,750	22	0	30	15	33	77
93	Rogers & Butler (New York)	**15,294**	15,294	0	25	15	55	5	70
94	Benham, Richards & Armstrong (Columbus, Ohio)	**15,066**	13,500	10.1	33.6	13.9	11.8	30.6	26
95	Backus, Crane & Love (Buffalo)	**15,000**	7,500	40	20	20	10	10	22
96	Childs & Smith (Chicago)	**15,000**	17,500	2	45	43	8	2	108
97	Gaudreau & Gaudreau (Baltimore)	**15,000**	10,000	5	5	20	30	40	12
98	Katz, Waisman, Blumenkranz, Stein, Weber (New York)	**15,000**	15,000	0	0	15	0	85	21
99	Magney, Tusler & Setter (Minneapolis)	**15,000**	17,000	5	15	35	27	18	95
100	Walter Scholer & Assocs. (Lafayette, Ind.)	**15,000**	13,000	0	3	64	16	17	32

NOTES: This list does not include so-called package-building firms, which combine design with construction. N.A. means data not available. "Other" includes housing, hotels, churches, stores, banks, research laboratories, public buildings, recreational facilities, garages, and civil engineering projects.

END

Hospital in the round



PHOTOS: JULIUS SHULMAN

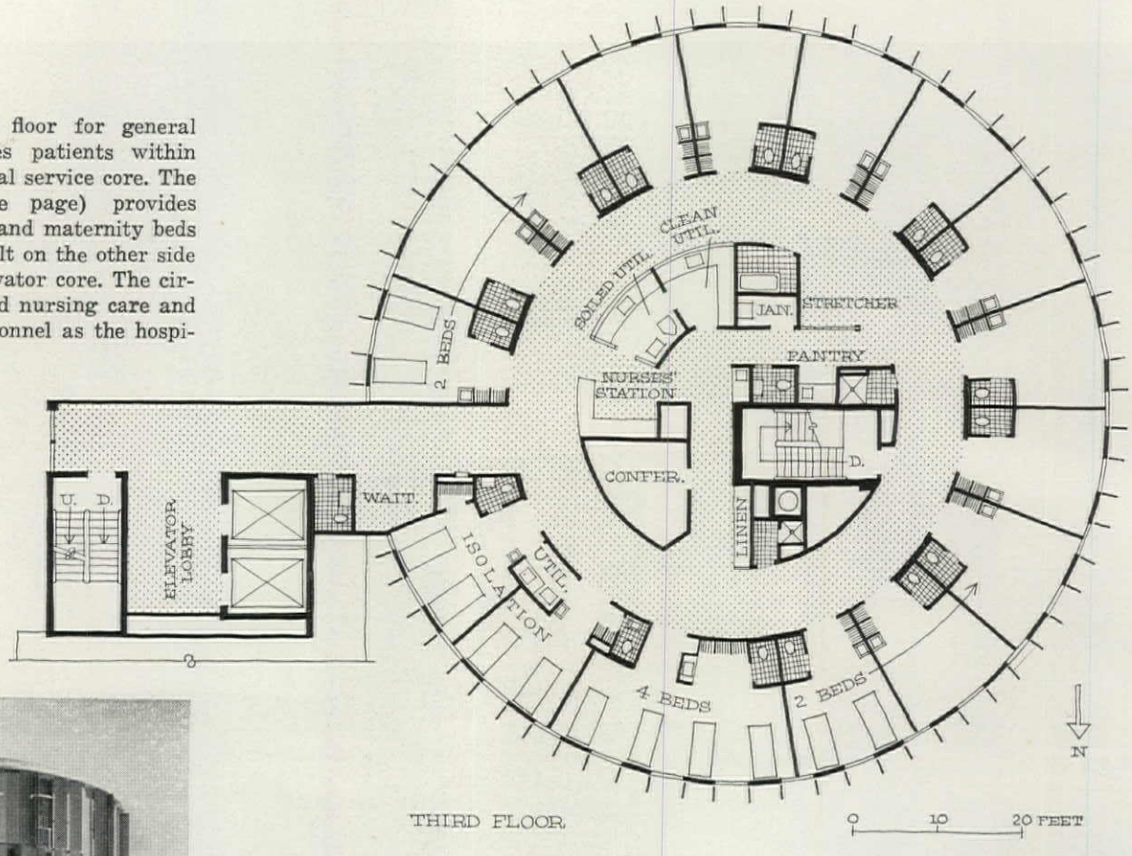
The radical circular plan of this new California hospital had some critics going around in circles, too. But the nurses and the patients like it fine.

For a long time architects have been working toward an efficient hospital plan grouping patients' rooms around a central service core. Now, in Los Angeles' new $1.3 million Valley Presbyterian Hospital, Architects Pereira & Luckman have put the idea to the test.

To the surprise of skeptics, the circle works. Nurses walk short distances from their central stations out to any room, or quite literally make their rounds in the circular corridor, glancing in on patients more often than usually happens along a long, straight hall. On specific calls, nurses may short-cut directly to a patient's room, using smaller passages cut through the core itself (see plan overleaf). The saving in nurses' time and fatigue is reflected in better patient care.

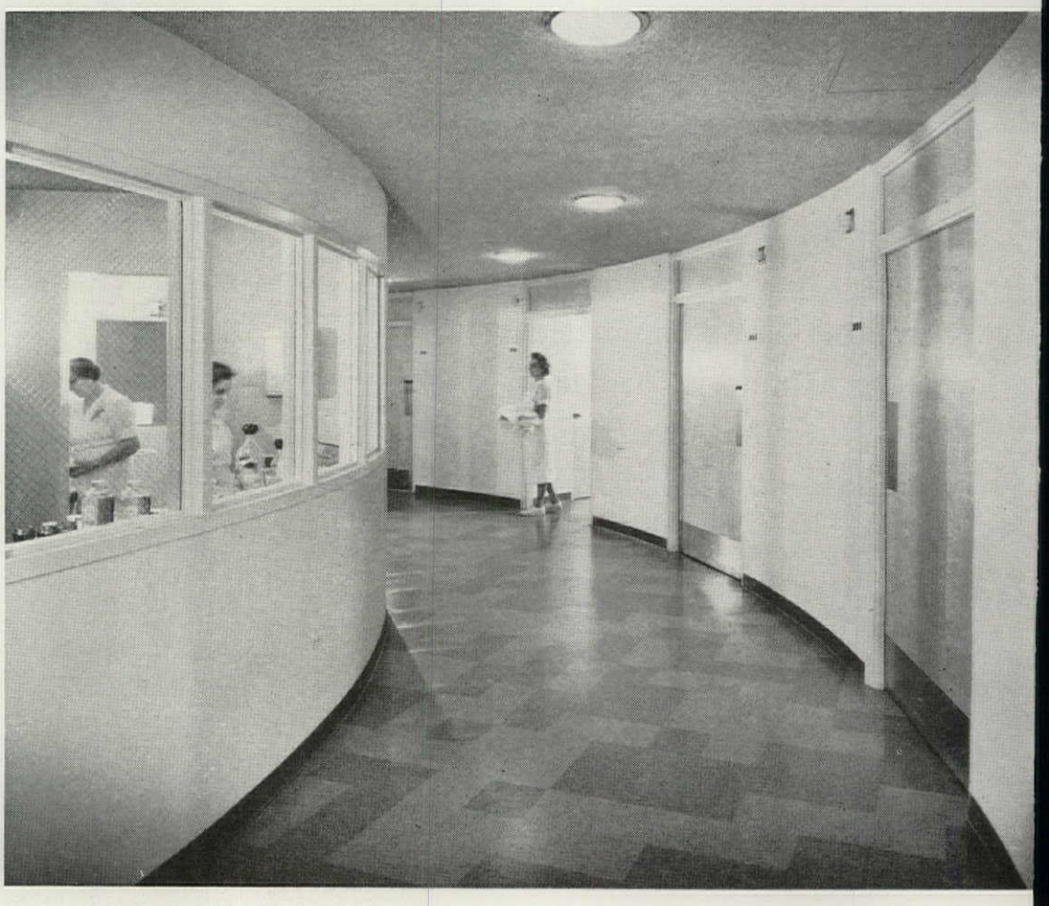
Since 34 beds per typical floor are fitted into a space-saving circle of 6,000 square feet, the chief problems so far have been crowding and noise. In the core, nursing stations and storage space have proved too small, and clatter from utility rooms sometimes hampers quiet staff discussions at the nursing stations. The bustle, on the other hand, gives new patients the comforting impression of a large, active staff. And since all beds face the corridor, the patients soon get to feel like part of the "family." (Most find they prefer to watch what is going on in the corridor rather than stare through a window anyway.) As a result of the experiment, the hospital has asked for more of the circular floors, with improved core facilities, in a 67- to 90-bed addition.

Hub-and-wheel third floor for general nursing (right) places patients within easy reach of the central service core. The second floor (opposite page) provides space for 12 bassinets and maternity beds until a new wing is built on the other side of the freestanding elevator core. The circular plan has improved nursing care and may actually save personnel as the hospital grows to 300 beds.



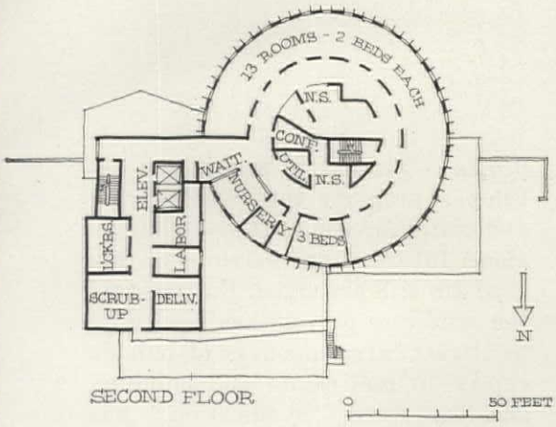


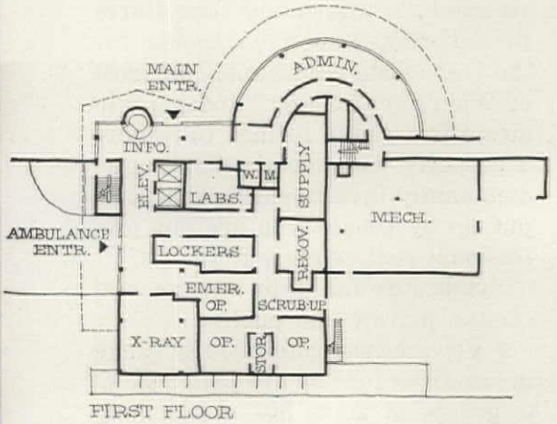
VALLEY PRESBYTERIAN HOSPITAL, *Van Nuys, California.* ARCHITECTS & ENGINEERS: *Pereira & Luckman.* GENERAL CONTRACTOR: *Steed Bros.*

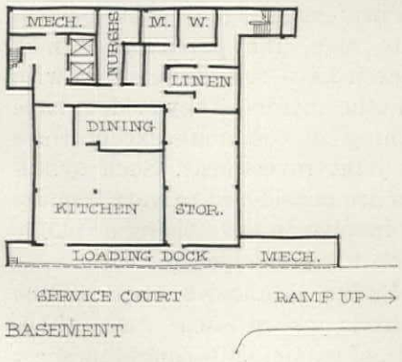


Curving corridor links patients' rooms with the service core, which is also laced with short-cut passages (plan above). Windows in the utility rooms let both staff and patients in on activity. The nurses' station squeezed in nearby gets noise through open utility-room doors, but this and other core defects are being corrected in plans for a new addition.

Patients face the reassuring bustle of the corridor and can watch high-mounted TV sets controlled from beds; few miss a direct outdoor view. Nurses have a clear path from door to medicine tables between beds. Wall cranks give each patient control of the aluminum sun louvers mounted outside his own tall window (photo below).

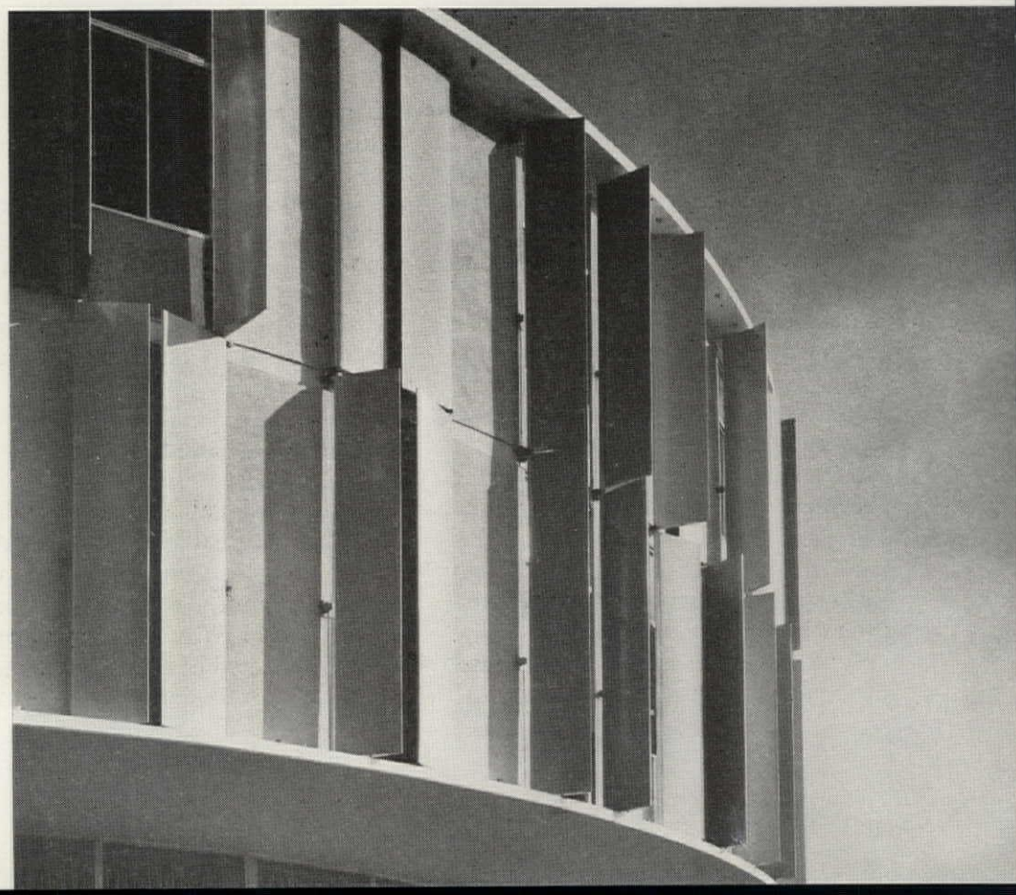






Lower floors (plans above) house the maternity group on the second level, surgery on main floor, services below. END





A new vehicle for public and professional investors, the real estate syndicate has become an important source of money for building new buildings and refinancing old ones.

The growth of group finance

In Los Angeles last month a blaring TV commercial solicited subscriptions at $1 a share to build a $1 million motel in the nearby Mojave Desert. In New Nork City Realtor Louis J. Glickman bought an entire 16-page four-color section of the Sunday *Times* to advertise the public sale of shares in the $5.8 million leasehold of the 32-year-old General Motors Buliding. In Maracaibo, Venezuela, local builders are about to start an office building that is completely financed with $1.8 million of cash raised from ten new investors in real estate by New York Realtor S. Joseph Tankoos Jr.

Although perhaps no one of these cases is truly typical, they are all manifest examples of the growing practice of financing building ventures by private and public participation in real estate syndicates.

Syndicate fund raising has always been a part of the real estate business, but only recently has it assumed the proportions of a major financing device. This trend is largely a product of business prosperity. When times are good and savings are high, both the public and the professional investors look for new ways to put their money to work. The real estate syndicate offers just that, and it provides a way for the small investor to participate in big real estate ventures that would not otherwise be open to him.

Syndicate ownership of real estate has reached a total of about $9 billion, and current growth is at a rate of about $3 billion a year, according to Glickman. Syndicates formed under his aegis alone have invested about $135 million in properties valued at $500 million. Other leading syndicate organizers who operate across the nation include New York Attorney Lawrence A. Wien, whose investors have equities of more than $150 million in properties worth over $400 million; New Yorker Marvin Kratter, who has organized groups that have invested $40 million in properties costing over $250 million, and Chicagoan Samuel Banowit, whose syndicates own about $75 million worth of real estate.

The recent upsurge in syndicate operations is a help to the building industry. It not only produces the funds for a growing number of new ventures but also provides purchasers for many recently completed buildings. A syndicate's purchase of a new building permits the original builder-owner to recover his capital, realize his profits, and then put both back to work in another construction venture.

What are syndicates?

There is no legal definition of what constitutes a real estate syndicate. It is merely a group of investors participating in a common venture. Before World War II a syndicate usually consisted of a small, intimate group of professional real estate people organized to acquire or develop a property that was too big and costly for one of them to handle alone. Informal partnerships of this type are still arranged. But recently the syndicate process has been used to attract large amounts of outside capital to real estate and building, and the word, "syndication," has acquired a new meaning. Says Harry B. Helmsley, New York broker for the real estate transactions of most of Wien's syndicates: "Today's syndicate is a group formed to acquire a property with money that is predominantly investment in character put up by people who are not professional real estate purchasers."

Syndicates fall into two general classes, private and public:

- Private syndicates usually range in size from four or five participants to groups of 20 to 30—occasionally as many as 100. Brought together by a professional real estate or syndicate man, the participants may not even have been acquainted with each other before. They seldom have anything in common—except their new joint investment. Such syndicates are considered private because they involve no advertising or public search for participants.
- Public syndicates may include hundreds, or in some cases thousands, of participants sought publicly through various kinds of advertising and promotion campaigns. Robert K. Lifton, an associate of prominent New York Realtor-Syndicator Jerry

M. Tenney, describes today's syndication as a "merchandising operation." He says: "Syndicators buy a property wholesale and then sell it retail to small nonprofessional investors, and in the process take a middleman's profit for their services." In a public syndication this profit usually ranges from 15 to 25 per cent on the transaction (private syndicates normally pay no fees or organizer's profits).

Public syndicates have not had so large a role in new construction as have private syndicates. New construction always involves considerably greater investment risk than the acquisition of existing property, and syndicate promoters are consequently reluctant to solicit the funds of small investors for such ventures.

Nevertheless, there appears to be developing a trend toward public syndicate financing of new buildings under well-protected circumstances. During the past year, for example, several motel projects in various parts of the country have been started under plans that anticipate partial syndication upon completion. In these motel cases the builder-sponsor is usually required to put up about 20 per cent of the cost. The next 40 per cent is covered by syndicate funds, and the final 40 per cent by a first mortgage. Albert Mintzer of New York, president of the SIRE Plan (Small Investors Real Estate Plan), cites one of his own syndications as another example of a protected deal. He may soon offer public participation in a projected 200-room, $2.5 million airport hotel project, and also a new $3.5 million shopping center. Both ventures would be conditioned, however, on obtaining firm long-term lease commitments from a major hotel chain and from prime store tenants before the buildings start. Two other New York syndicators report preliminary plans for widespread syndications covering a new $10 million New York office building—but only upon completion of the project under the direction of a small professional syndicate group—and for an $18 million hotel-motel that would be leased in advance by a major hotel chain and would have mortgage financing to cover about 50 per cent of its cost.

The syndicate's attraction

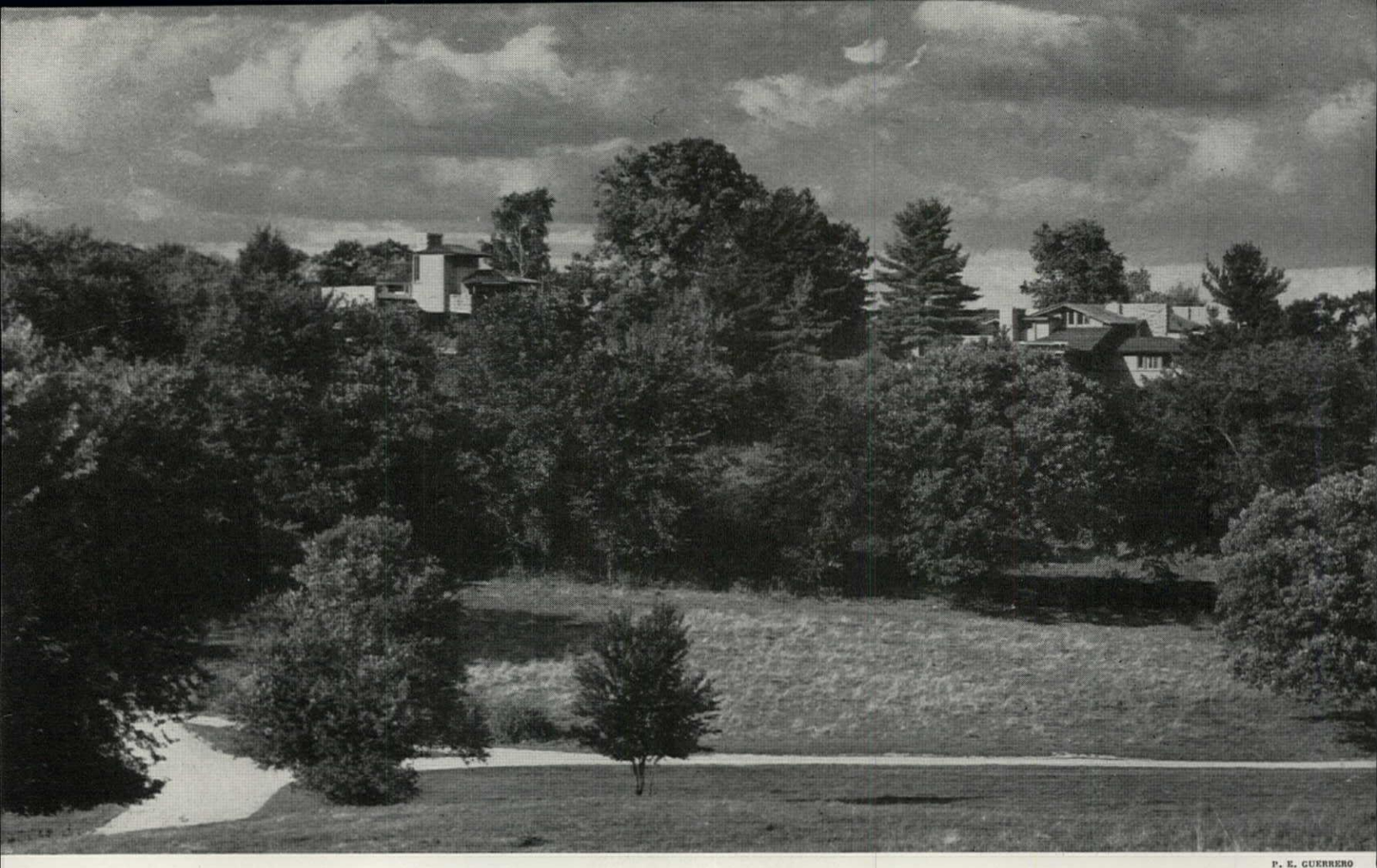
High yields and special tax advantages are the magnets that have attracted large sums into syndicates. Returns of 10 to 12 per cent are common, and they sometimes go as high as 16 per cent or more. In syndicating properties throughout the U.S., Realtor Clinton B. Snyder, of Hoboken, New Jersey, observes that yields vary in different areas. In the "buyers' market" around New York, for instance, investors will accept a 10 per cent return, whereas a comparable offering would have to show a 12 or 13 per cent return to attract participating investors in the Midwest or Los Angeles. These high yields are partly in compensation for the nonliquidity of the investment and for the risk of a decline in income that is inescapable in virtually every real estate deal.

Another factor which contributes importantly to a syndicate's high yield is the syndicate's tax position: virtually all syndicates are established on a partnership or noncorporate basis, and are operated in a manner calculated to make them exempt from federal corporation taxes. This permits distribution of most of a venture's earnings to the participants. Even more important, partnership tax rules allow each syndicate participant a prorata share of a project's depreciation allowance for tax purposes. "Usually the depreciation allowance that is passed along to syndicate members," explains Helmsley, "is higher than the amortization on the mortgage, and, on the average, 30 per cent to 40 per cent of the return on each individual's investment is tax-free. Actually in the case of a 12 per cent return, about 8 per cent would be return on investment and 4 per cent would be replacement of capital (from the property's tax-free depreciation account) and, of course, *only* the 8 per cent return on investment is subject to personal income taxes."

Not all real estate experts agree that the partnership format exempts large syndicates from U.S. corporation taxes, which, according to law, must also be paid by any organization engaging in business in the manner of a corporation. The fear that the Internal Revenue Service one day might claim large retroactive corporation taxes from many syndicates has been the greatest deterrent to greater syndicate growth. Government regulations for determining whether a partnership must pay corporation taxes are not very explicit and the IRS itself has done little to clarify them. In several instances IRS has given qualified advisory rulings to specific partnership syndicates stating that they would not be regarded as corporations for tax purposes so long as they functioned in certain ways. In other instances it has declined to give such rulings. Perhaps reflecting its own uncertainty, IRS has never issued any interpretative public "digests" based on the specific real estate syndicate rulings it has made, although it customarily issues such digests covering all tax situations of general interest. Late last year IRS announced that it would draft clarifying definitions or basic criteria regarding corporate tax liability of syndicates. Last month, however, it was unable to give any word as to when such clarifications might be issued.

The syndicate's future

For several years realty leaders have pressed for federal legislation that would authorize another form of syndicate financing that would not have any doubtful tax status. They asked Congress to approve the formation of real estate investment trusts that would have clear-cut specific exemption from corporation taxes, and legislation to achieve this narrowly missed enactment last month (see "News"). Although disappointed, syndicate leaders still expect a steady, substantial growth in the present form of public participation in real estate financing—and all its direct and indirect benefits to building. END



P. E. GUERRERO

Beautiful enclosures are the essence of architecture, and in opening them up in remarkable new ways Wright has created a new kind of space.

MODERN ARCHITECTURE VI

Frank Lloyd Wright:

Modern architecture at this moment is anything but monolithic. As this series of articles has tried to suggest, the modern movement is today a thing of many faces, of many splinter groups, even of splinter groups within splinter groups.

Yet there is also about modern architecture a certain sense of continuity, a sense of having grown out of a common tradition and of moving toward a series of common objectives. This sense of continuity can be read between the lines of the history books, but it can be read much more clearly in the life of a single architect who was present when modern architecture was in its infancy, who carried it forward to its present energetic and youthful state, and who has—in doing so—molded much of its future. That man, of course, is Frank Lloyd Wright.

Within the span of Wright's extraordinary lifetime, splinter movements have come and gone; towns have grown into gigantic urban centers, the countryside has been infected by suburban sprawl. Technology has made incredible strides. Many of Wright's convictions have responded to such change. Yet the main body of his beliefs has not only stood the test of changing times; it has made many of the changes understandable—and, hence, answerable. And it promises today an approach to architecture that will become ever more valid in the decades to come.

That is why it seems fitting to conclude this series of articles with a discussion of the things Frank Lloyd Wright stood for in the days when modern architecture had its beginnings, and the things Wright believes today about the future of his art and, therefore, about the future of civilization.

The nature of space

"The reality of the vessel," says Lao-tse, "is the space within it." The space within it is also the most elusive, the most abstract, the hardest-to-define and the hardest-



Taliesin, Spring Green, Wisconsin, started in 1911 and still being expanded, is Frank Lloyd Wright's summer home and school in the Middle West. It is an integral part of the landscape.

master of architectural space

BY PETER BLAKE

to-measure thing about the vessel. And, for that reason, it is the hardest of all to make beautiful.

Architects, like vessel makers, can be divided roughly into two groups: by far the larger group consists of those who know how to make the vessel itself (some even know how to make the vessel beautiful); the smaller group knows also how to give life and beauty to that which is inside the vessel—the space within.

In the history of Western architecture there have been but few architects who qualified for this second group. And there has been no architect in the Western world since the great days of the Renaissance who has been so outstandingly qualified as Frank Lloyd Wright.

The reasons for this are many: on the plane of vessel making, Frank Lloyd Wright has had few peers in his time. His handling of materials, of the site, of massive forms, and of delicate, decorative details has introduced a highly personal and eloquent idiom into the architecture of this century. But Wright's claim to greatness is not based on these innovations alone, or even primarily. It rests squarely upon a single, staggering fact: Wright changed the nature of architectural space and, then, proceeded to change the nature of structure and form to fit his new spatial concepts.

The story is intricate. For the purpose of telling it clearly, let us assume that space is a tangible, visible, measurable quantity. Let us assume, in fact, that the space within a building is made visible by some sort of vapor that instantaneously fills every part of the building as it might a chemist's test tube or retort. The dense vapor is the space within. A further postulate is that this magic space-vapor will penetrate through anything that the eye can see through—e.g., transparent glass.

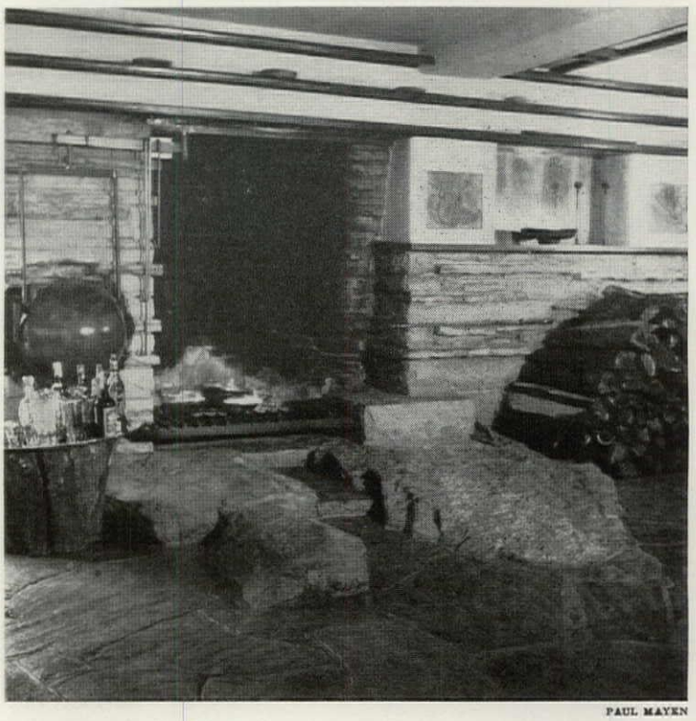
When Wright approached architecture in the 1880's the nature of architectural space was static. Space was bottled up in rooms; it was a sluggish entity, hardly moving at all. It was as it had always been in the past



P. E. GUERRERO

Deep roof overhang at Taliesin West parallels the lines of the Arizona horizon.

Rocky ledge projects through the living-room floor in the Bear Run house (1936) to form a hearth for its fireplace.



PAUL MAYEN

—a thing experienced by men standing, sitting, or moving about at a slow rate, on foot.

To Wright, to Whitman, to Sullivan, and to all the others who saw in America a new kind of society, this static quality had little to do with the young republic. America was all size and all motion; it was railroads, it was migrations of millions of people, it was ships, it was soon to be cars and planes. The new spirit was anything but static—and Wright determined to express that new spirit in architecture, to create an architecture that would be truly American.

Wright's preoccupation with this idea has often been mistaken for chauvinism. It is nothing of the sort. Ever since the turn of the century, the new idea of space-in-motion has been thought of, all over the world, as an *American* idea. Einstein, for example, was "being American" when he made time a new dimension in physics; Marcel Duchamp was "being American" when he painted his "Nude descending a staircase"—i.e., a figure not caught in one, fixed position, but shown in motion; Picasso was "being American" when he did his motion-paintings—and Le Corbusier actually wrote, in *Quand les cathédrales étaient blanches,* that "I am an American!" All of these men understood that new, philosophical Americanism which made all the difference to Wright at the beginning of this century.

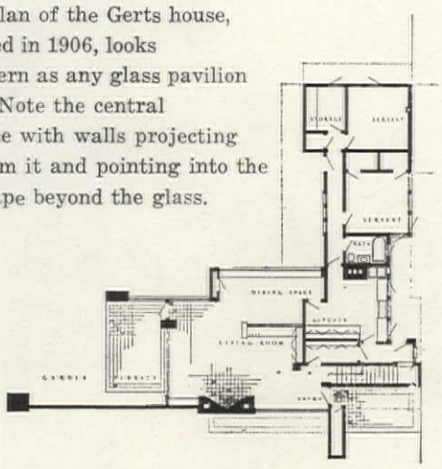
Wright understood it to mean this: since we have learned to move faster our eyes have learned to absorb impressions faster and in larger units, and to look ahead expectantly rather than back or around us. Bottled-up space had become a strait-jacket; a new kind of space, space-in-motion, had to be created to fit our new way of life, our faster rate of movement and development.

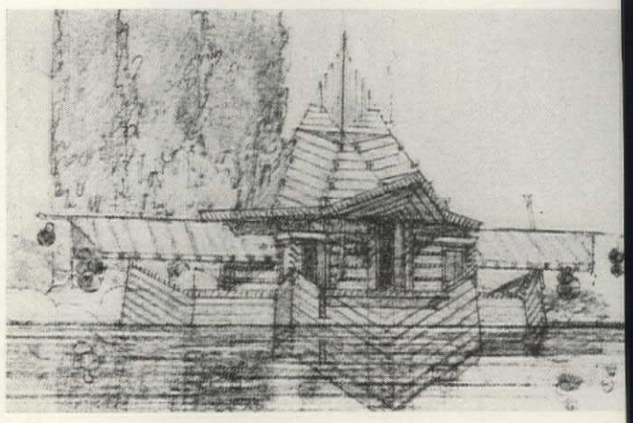
To the son of pioneers and first settlers, this concept of space-in-motion came naturally: in his mind's eye, there was always a new frontier beyond the Wisconsin hills, always a sense of unlimited space. Wright sensed that this, first of all, made the boxed-up house obsolete; there seemed to be no good reason why it could not be melted out, so to speak, into an unlimited prairie. And he next sensed that the unlimited prairie made the boxed-up city obsolete as well; it, too, ought to be melted out, flattened, decentralized. Like Jefferson, Wright is thoroughly agrarian. He hated and mistrusted the crowded city when he started out, and he hates and mistrusts it today. In fact, this is probably Wright's single "Achilles' heel"—for he knows that the monster metropolis must be faced, and that flattening it out is no longer feasible. About this, more later.

In logic, Wright began by applying his new understanding of space-in-motion to the smallest unit—the house. The first things to go were the walls that bottled up the space. They were replaced by screens and other elements that permitted the space within to move around them, to develop, to take on a thousand new aspects as man moved around inside architecture. The barriers inside were down, and soon the barriers that enclosed buildings came down also. Walls with window holes were replaced by expanses of glass alternating with expanses of solids; corners, especially (because they seemed to form the last obstacle to the free flow of space from inside to outdoors), were replaced by areas of glass. Slots of glass were introduced to separate roof planes from supporting walls so as to permit space to flow with greater ease over and around and through the necessary enclosures of the building.

But here again Wright was not satisfied merely to remove physical barriers that inhibited the free flow of

Open plan of the Gerts house, designed in 1906, looks as modern as any glass pavilion today. Note the central fireplace with walls projecting out from it and pointing into the landscape beyond the glass.





Structure of a Lake Tahoe cabin (1922) suggests the first radical break with rectangular geometry and an attempt to create a "plastic" structural enclosure.

space. He went far beyond that by two infinitely subtle means: first, by retaining *some* barriers so that the flow of space could be imperceptibly controlled—molded to become a plastic reality and second, by using natural light—i.e., the sun—to help give life to the newly liberated spaces.

The principal barrier Wright retained was the roof. It has been said that Le Corbusier's houses are walled gardens without roofs, and that Wright's houses, instead, are wall-less spaces sheltered by low-slung roof planes. This is an oversimplification, but it dramatizes a basic difference between life in the north and life in warmer climates; in Le Corbusier's crowded Mediterranean basin, men have long lived jammed together on rocky islands and steep hillsides; they wanted and needed privacy and protection from one another. On Frank Lloyd Wright's prairie there was plenty of space —so he could make the line of the horizon the visual limit of his low-slung buildings; but he did need protection against the weather—hence the great, sheltering slabs of roof.

The first phase: space is liberated

So Wright's buildings were designed to stop space from moving vertically (more or less), but to let it flow horizontally. This was so, at least, in Wright's first attempts to sculpture space. The best example of that period is an unbuilt project—the Gerts House in Glencoe, Ill., designed in 1906 (plan, above). Here all the wall elements were separated from one another and from the roof by areas of glass; space was allowed to flow freely with only subtle directions suggested by the architect; only the roof plane was a clearly defined enclosure, a lid that created a sharp barrier above, and directed the eye toward horizontal vistas. (Wright understood then what graphic artists emphasize so often today: that the human eye moves more easily in horizontal planes than in the vertical.)

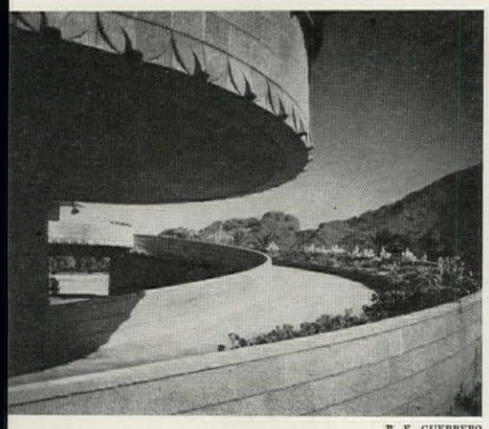
To give added life to this space-in-motion, Wright next used the sun as a helper. In many of his buildings there are slots of glass—often concealed within the roof structure—whose sole purpose it is to let a streak of sunlight into the center of the building and let it move across its interior walls and its floors, creating sudden pools of light and surprising accents, pointing up the natural textures used within. These "moving fingers" of sunlight are a measure of Wright's genius—and a measure of his love for nature. Le Corbusier once built a penthouse with an evergreen hedge planted in a box that could be raised or lowered on a mechanical elevator, to open up a view or to close it off. To Frank Lloyd Wright, such rather amusing manipulation of nature would appear to be sacrilege; he works *with* the sun, *with* the trees, *with* the breeze. They are an integral part of the life of his buildings.

This, then, was stage one in Wright's discovery of space-in-motion: first, the liberation of space; next, its sculpturing into horizontally moving elements; and, third, its animation with light. In the work of most architects those achievements alone would have been sufficient to assure them a place in the history of their art. In Wright's work, this was just the beginning of an entire new era of creation.

The second phase: structure molded by space

It takes a very special kind of sensitivity to feel the nature and quality of space, and Wright has it to the highest degree. To him, space-in-motion was not merely "activated nothingness"; it was a powerful, expanding force—powerful enough to break down walls of stone, powerful enough to push up through the roof and down through the floor.

It was, in short, a creative, living force in itself, demanding and getting ready to produce entirely new forms, within which it was willing to stay more or less contained. To Wright, the rectangular geometry of his early buildings—however dissolved in their elements—seemed but a makeshift enclosure for space-in-motion. What was needed was a new kind of enclosure—a new kind of shell with an entirely new kind of structure.



P. E. GUERRERO



FRED LYON

Spiral-ramp house near Phoenix for David Wright (left) and the San Francisco store for V. C. Morris (right) both show how the idea of continuous space began to generate continuous structures. They were designed in 1953 and 1947, respectively.

Now, as before, Wright went to nature for his inspiration, and in sea shells he found it. Space-in-motion must be clothed with forms in motion—with plastic forms of infinite continuity. The straight stick and the straight masonry wall were good enough to make box containers for boxed-in space; they were inadequate for this vigorous new animal that Wright had unleashed.

And now something very odd began to happen in Wright's career—something that was to happen to him again and again in years to come: he began to invent forms and structures, entirely in the abstract, which no practical engineer of his time could envisage (much less calculate). He was engaged in what is known today as "pure research"—the speculation about things that (so the researcher's intuition tells him) might very well be true, but that seem to have no immediately practical application whatsoever. Wright began to speculate, for example, about continuous structures, about buildings in which, as he put it, "walls, floor, and roof would form a single continuity, with stresses flowing from one into the others without interruption." These years of pure research were frustrating in many ways, for while Wright knew, intuitively, that such structures could and would some day be built, he had no means of building them at the time.

As a result, his continuous space enclosures of the early twenties and thirties either remained projects or, if built, were constructed by traditional means and, hence, often appear a little clumsy in over-all form. Yet Wright managed to bend the traditional building materials and building methods nearly to the breaking point to achieve the kind of plasticity which he sensed was just around the corner. His hexagonal-module houses, his anything-but-rectangular forms, all used the stick and the brick and the flat sheet of glass; yet no one had ever managed to make them look less flat and less straight.

The break-through finally came in the late thirties, and it is being expanded by Wright and others to this day. Wright's first, almost completely continuous building was the administration building for S. C. Johnson & Co. in Racine, Wis. Here he not only used the principle, familiar by then, of continuous concrete framing (with some unexpected and exciting new twists), but he used also glass tubing in continuous curves and domes, curvilinear skins of brick veneer, and molded fixtures and fittings of every conceivable kind. At long last, the shell enclosure for his space-in-motion was a reality.

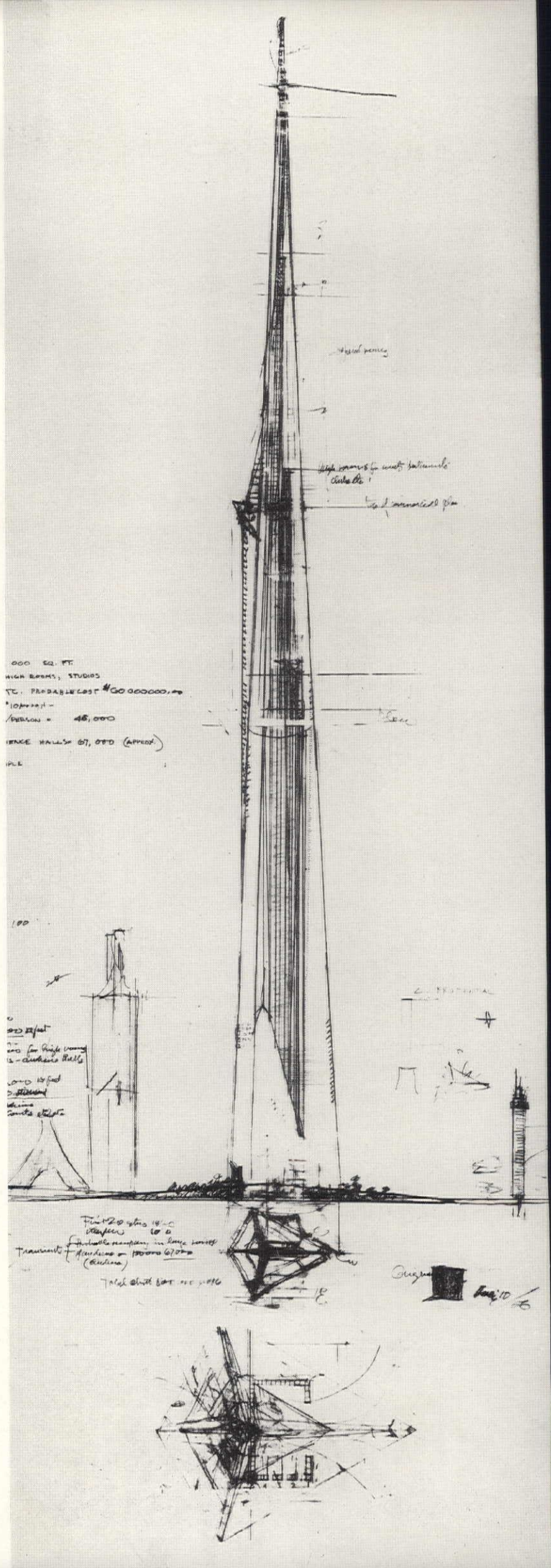
From Johnson Wax Wright moved on to ever more assured interpretations of continuity in space and plasticity in structure. In 1947 he designed the little V. C. Morris store in San Francisco, whose basic theme was the spiral ramp which wound its way around the central, circular space. This ramp was to reappear in Wright's later buildings in an increasingly refined form. It does several things: to start with, it almost forces the visitor to experience space-in-motion. As one ascends or descends the ramp on its gentle incline, the space within the structure slowly begins to move and take on a dimension that no still photography can ever capture. And the spiral ramp also tends to dictate the form of its enclosure. In the Morris store (a remodeling job) the enclosure was still more or less rectangular; but in the later house for David Wright, and in the Guggenheim Museum now nearing completion, the continuously moving spiral shaped both the structure and the enclosing walls.

Nature and materials

Although Wright has been single-minded in his pursuit of a new kind of space and a new kind of structure to house it, there have been many by-products of this work that have become part and parcel of modern architecture. The most important group of these by-products has to do with Wright's attitude toward nature. The reason for this is simple: in Wright's determined search for his major objectives, he found allies not among the engineers, not among the rationalists of whatever specialty, but in nature alone.

There seemed to Wright to be so much inspiration in nature—and so little in man, particularly in specialized

"The Illinois"—a 1956 proposal for a one-mile-high building in Chicago—was designed to house 130,000 people. It would have meant clearing most of the Loop area and opening it up to traffic arteries and parks. This was Wright's dramatic way of saying that today's modern city must go.



man. So he soon found himself in a mystical, almost atavistic love affair with nature. Whether consciously or not, he began to worship the ancient elements that men had venerated when they were still in intimate contact with their natural environment: fire, water, earth, and rock. At the core, in the heart of any typical, Wrightian house, there would invariably be the big hearth, the fireplace more often than not hewn out of rock. Occasionally there might be a pool of water nearby (in the Bear Run house, of course, the waterfall is part and parcel of the house, and a rocky ledge from the fall juts out through the living room floor slab to form the base of the hearth). And wherever house and earth come into contact, the house treats the earth with the gentleness of a lover caressing his beloved. The base around most of Wright's flat-site houses, for example, is a gently stepped-down curb of concrete or stone that sets the house down lightly on the ground.

And just as Wright treated nature with the respect due to something one loves deeply, so he never violated nature's products. Wood was never painted, neither was brick. Natural stone, natural fibers, block in the color of crushed rock—these are the materials produced by the earth, and in Wright's book they deserve all the respect due to anything that comes out of nature.

This position places Wright not only in conflict with those who, like Le Corbusier and Mies van der Rohe, tend to treat architecture as an entirely man-made product and delight in the synthetic look as a symbol of our culture; it also places him in conflict with those who simply see mass-production building in practical terms as a function of geometry.

Wright is, of course, perfectly aware of the need for mass-producing elements of buildings and even buildings in their entirety. Most of his houses over the past twenty years were designed on a regular module—be it square, triangular, hexagonal or what have you. But Wright forever challenged the thesis that rigid, modular building can only be expressed by some rigid geometry. To him, the module is simply a means to

continued on page 196

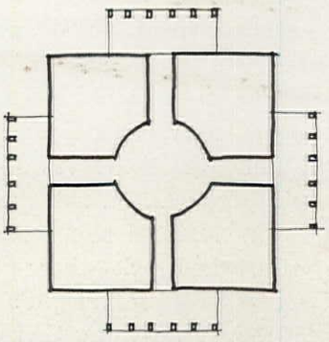


Bright red seating, set off by a related rug and off-shade pillows, lends an intimate warmth to the lounge "pit" in the huge central room. In the background is a storage wall fitted with books, bibelots, and musical instruments.

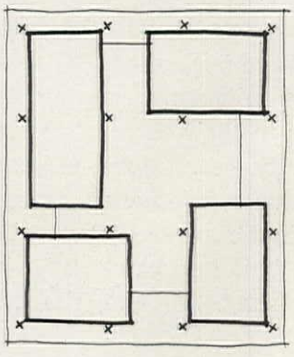


PHOTOS: © EZRA STOLLER

Walls enclosing the four small "houses" around the central room meet the edge of the skylights which define the roof structure and light the interior.



Plan diagrams comparing the Sixteenth Century Palladian Villa Rotonda (top) with the house (below) show similarity of size and basic arrangement.



Few houses are important as architecture. But this luxurious home by Architects Eero Saarinen and Alexander Girard is a worthy companion to a classic predecessor.

A contemporary Palladian villa

This pristine and delightful house is of general significance because it combines two apparently opposite concepts of residential planning: first, a lightly-linked collection of individual "houses" each containing a separate function and; second, a single structure with one central space dominating the entire building. As such, it recalls Andrea Palladio's design for the Villa Rotonda in Vicenza, Italy, which made a similar departure nearly 400 years ago.

Instead of dispersing the separate "houses" for parents, children, guests, and service, Architects Eero Saarinen and Alexander Girard arranged the four units pinwheel fashion around the perimeter of a single 100 by 120 foot roof structure. This structure, a welded grid of double steel channels supported by 16 cross-shaped steel columns at the intersections, is a simple and elegant unifier of the functionally complex plan.

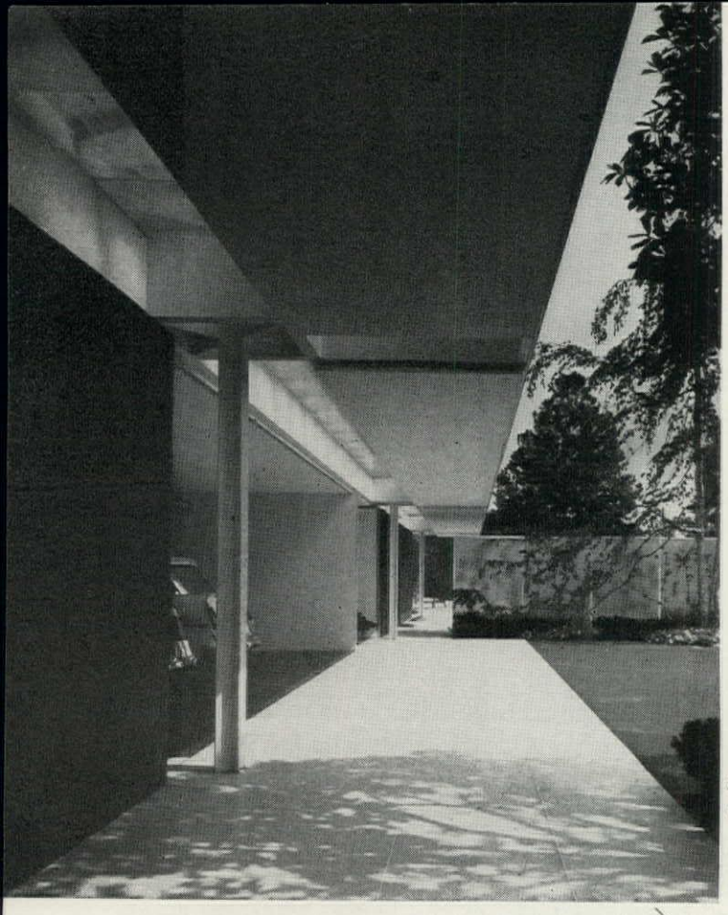
The structural system is emphasized by the skylights framed between the channels (photo left). Supporting columns, kept free of walls in all cases, occur where the skylights cross. The head of each column spreads out to make a "capital" that is more void than solid. This pattern of skylights and columns also suggests a subtle relationship between the roof structure and the space beneath it. A continuous band of skylights casts diffused light under 10 foot deep overhangs along the exterior walls of the house, while inside another band marks the edge of the central "hall."

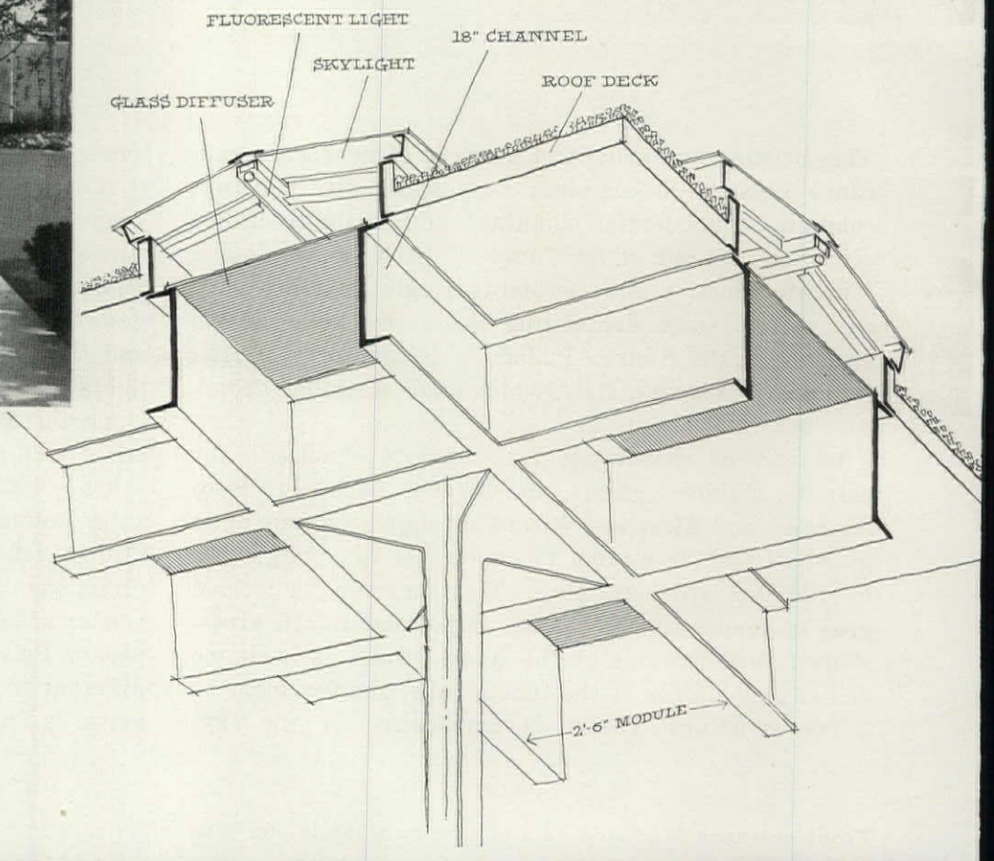
The "hall" recalls the central room in Palladio's Villa Rotonda. In each house (see sketches opposite), alcoves reach out from this space to loggias in four directions. In both cases, the corners are occupied by a cluster of separate rooms. But this house is a contemporary Palladian, and the pinwheel arrangement is as different from its predecessor as Bartok's contemporary music is from Palestrina's renaissance music.

Front entrance is adjacent to a contemporary loggia—for cars.

PHOTOS: © EZRA STOLLER



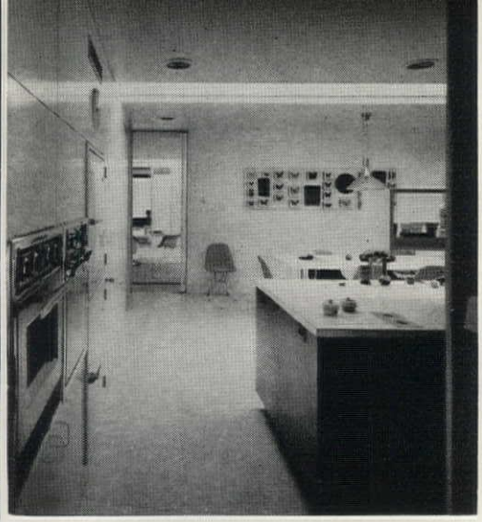




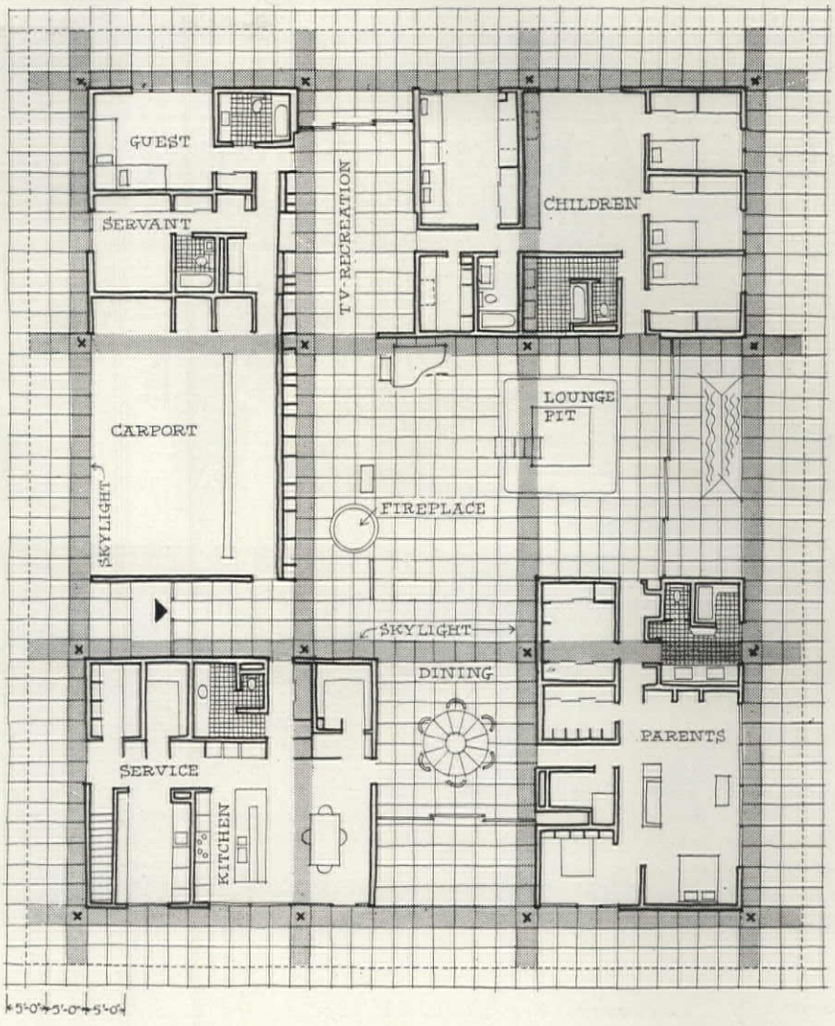
Steel columns, finished in white baked enamel, frame into steel channels at the intersections of the skylights (detail right). An outside band of skylights edges the perimeter of the house.

House is set on a raised podium extending the floor level 25 feet beyond the outside walls. Outside walls are 5 by 8½ foot slabs of cleft slate on 8 inch concrete block backing.









Four "houses" are arranged pinwheel fashion around the great central space (plan right). One zone contains kitchen and service elements (top), another the children's bedrooms and living room (below). Two other zones contain master bedroom suite and servant and guest rooms.



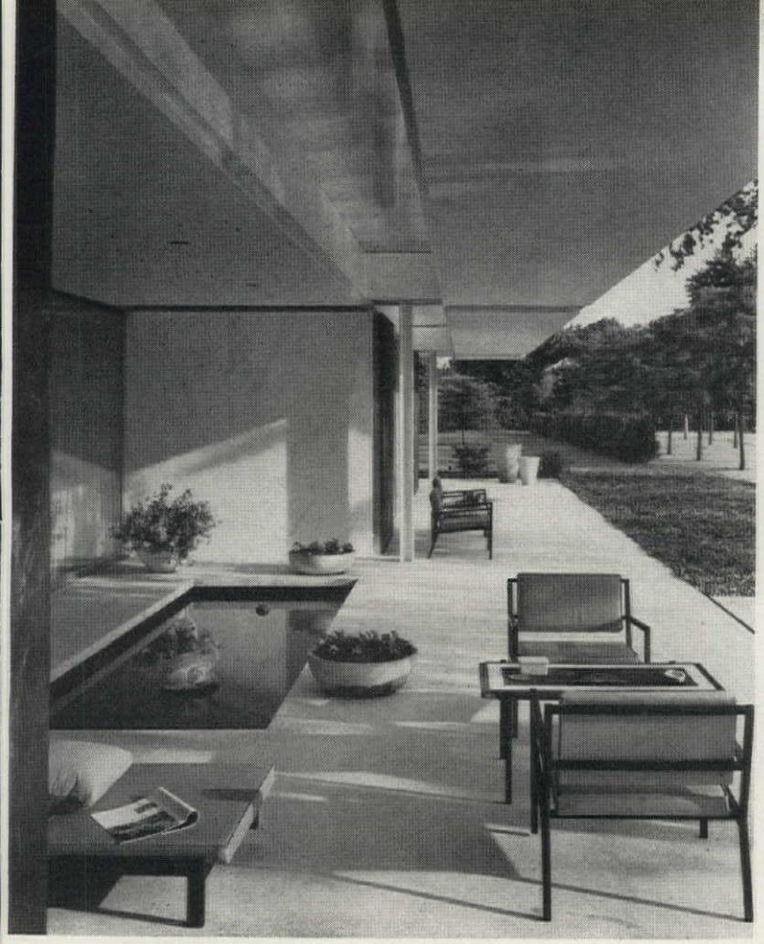
Center of the house is a lightly furnished 30 by 40 foot space edged all around by skylights. The circular fireplace is the focal point of the room. It can be seen from the rooms which open off of the central space. One of these (foreground) is for dining, another contains a TV-sitting room.

ARCHITECTS: Eero Saarinen & Associates and Alexander Girard
LANDSCAPE ARCHITECT: Dan Kiley
MECHANICAL ENGINEERS: S. R. Lewis & Associates
LOCATION AND OWNER: Names withheld on request

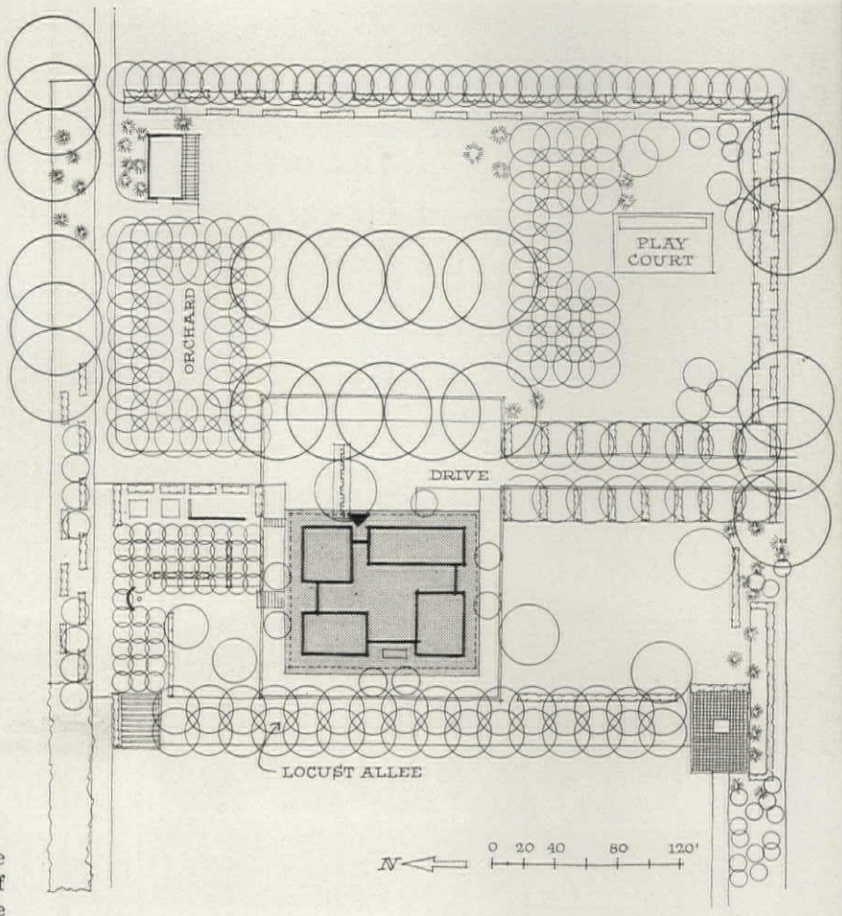
Lounge pit is 15 feet square. The marble seat which entirely surrounds the area is equipped with two sets of upholstered seat units, one for winter, another for summer.



Dining room can be closed off from central space or opened to the outdoor terrace by two sets of motor operated draperies and sliding glass doors. The table is an eight foot diameter marble top set on a marble base. Walls are white sandblasted marble.

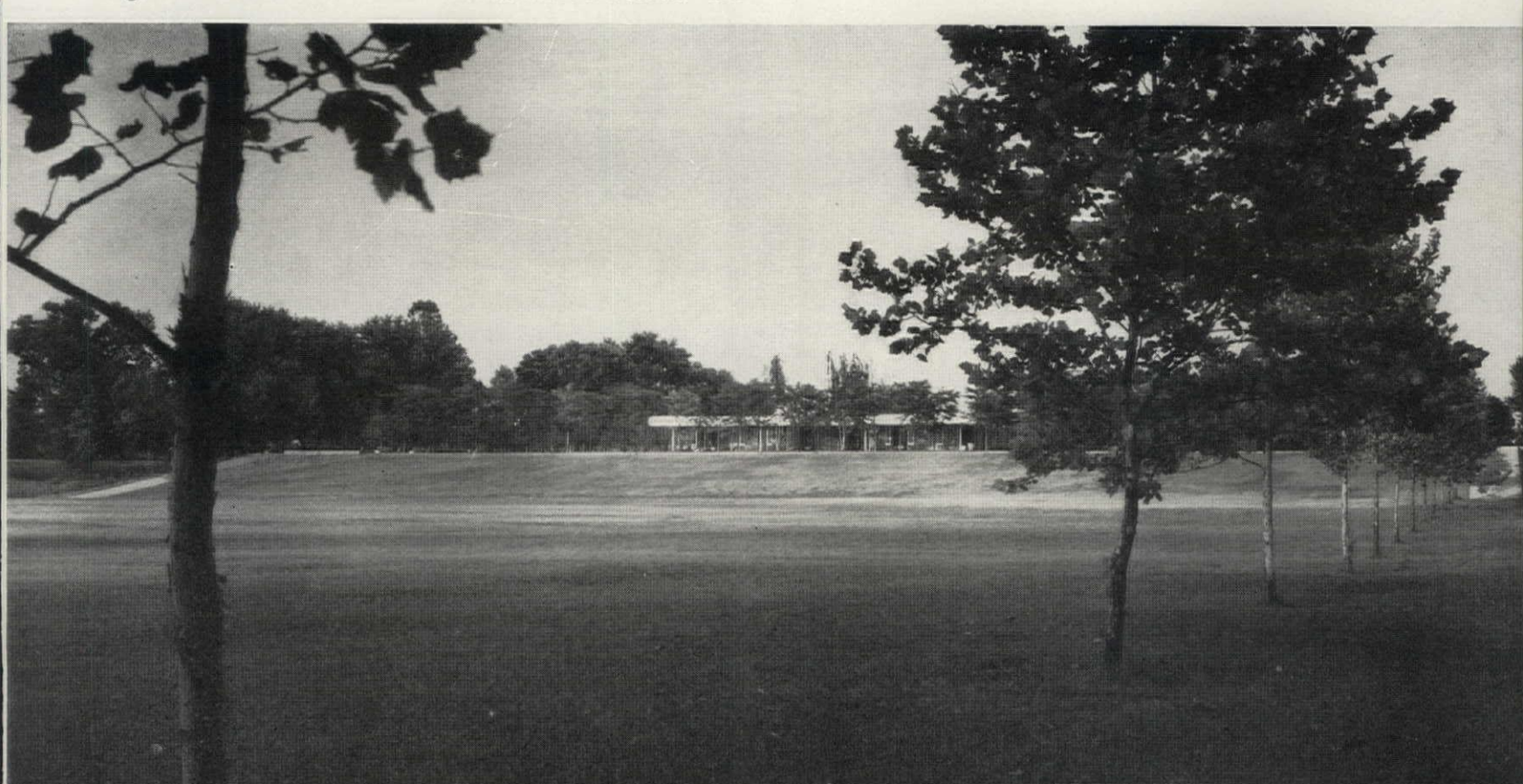


West terrace opens off the living area (photo left), overlooks the wide lawn below. White terrazzo flooring extends ten feet beyond the house around the entire perimeter.



Wide lawn stretches from a terrace near the house to a river bank 800 feet away. At the top of the terrace is an allee paved with crushed rock edged with locust trees.

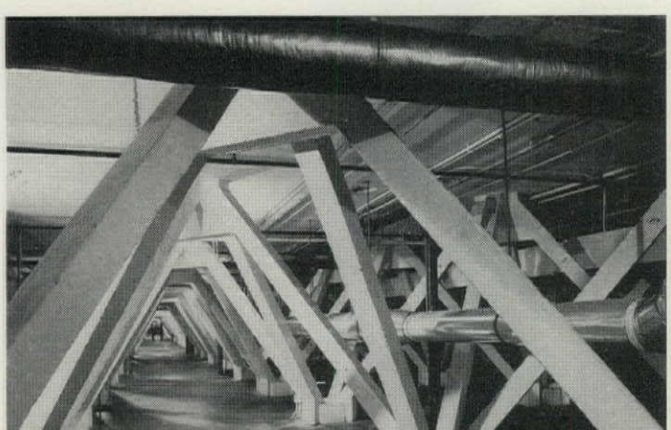
Landscape plan divides the outdoors into a sequence of rectilinear spaces in much the same way as the house plan divides the big roofed space into use-zones and rooms. END

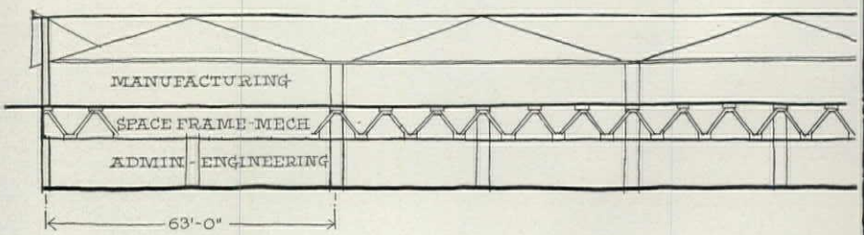


Technology

A plant with an upstairs

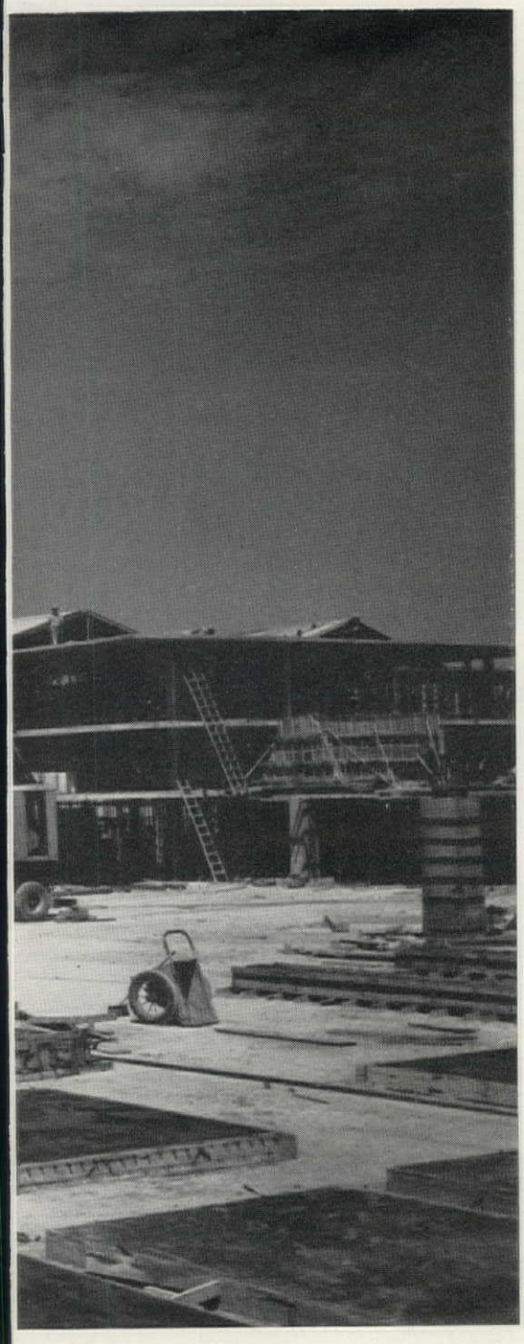
PHOTOS: (ABOVE) N. BLEECKER GREEN; (OTHERS) ULRIC MEISEL





basement

This new Texas Instruments plant, combining shell roofs and space-frame construction, may be a prototype of new light, flexible industrial buildings.



Airline passengers flying into Dallas, Texas, these days, can see stretched out beneath them, under a tent-like pavilion of undulating roofs, a new industrial plant that may well be the technical prototype of a new industrial order. Technically it is one of the most significant industrial plants of the last decade, combining thin-shell concrete and pre-stressed space-frame construction with a unique integration of mechanical services. It is the new electronics-transistor plant of Texas Instruments, Inc., designed by Architects O'Neil Ford (San Antonio) and Richard S. Colley (Corpus Christi), and A. B. Swank (Dallas), with consultation on roof design by Mexico's famed shell specialist, Felix Candela. At its dedication late last spring, the new plant was opened with an appropriate ribbon-cutting ceremony actuated by a radio signal transmitted from the U.S. satellite, Vanguard I.

Industrial plants tend to reflect directly the technology of their age. This one is as far removed from the "dark, satanic mills" of the early industrial revolution, with their overhead jungle of power belts and shafts, as it is from the one-storied, squat, and heavy concrete boxes of a more recent day. In its lightness of form and close architectural adaptation to function, the new Texas Instruments plant represents a new order of light industry, marked by the sophisticated control of large forces by a tiny stream of electrons, a new technological age.

Born on an electron

The nature of Texas Instruments' operations entered vitally into the new plant's design. The company, starting in 1930 as a small builder and operator of seismographic equipment for oil exploration, spread its technical talents in the postwar era to military electronics, and in 1952 became one of the first independent producers, under Western Electric's license, of the new electronic semiconductor devices called transistors. The transistor business grew prodigiously, and soon Texas Instruments could boast it was among the major, if not the largest, producers of transistors in the U.S., including in its output some of the first germanium types for portable radios, and the first pure silicon transistors in the commercial market. The company's growth curve, which will hit some $85 million of sales this year, created an urgent need for new and expandable quarters.

These quarters, the company determined, had to be fitted closely to the needs of the new technology. Texas Instruments carried operations from the growing of large single crystals of ultrapure metal in small, highly controlled furnaces, through their manufacture into pea-sized transistors. The metals had to be held within fantastic limits of only one part impurity in 100 million parts of metal. The units had to be assembled in an absolutely dust-free atmosphere of very low humidity, requiring three-stage air filtration and climate control over large plant areas. Moreover, the field was growing and changing so fast that any manufacturing area had to have maximum flexibility to change with developments.

More than this, the delicate, technical nature of the operations required that a highly skilled personnel be housed in stimulating surroundings. Stark work space was not enough. Texas Instruments' President Patrick E. Haggerty, one of a smart group of young military electronics experts



SHELL ROOF AND SPACE FRAME, the two new structural elements wedded in the new Texas Instruments plant at Dallas, Texas, stand out boldly in construction (above). Cross section through the two-story structure (left) shows the placement between floors of the unique space-frame "basement" section, made up of light concrete tetrapods to serve as strong frame and utility area for the working floors.

brought in after World War II to diversify the company, ruled that the new plants must be designed "for people and machines . . . must be good art as well . . . must express the company, its people and the society of which they are a part." To further this end, the company carefully acquired 300 rolling acres in the northeast of Dallas for spacious development, got a leading city planner, Sam Zisman of San Antonio, to lay out a long-range master plan for the area, and ordered its architects to proceed on the first building for the bursting Semiconductor-Components Division.

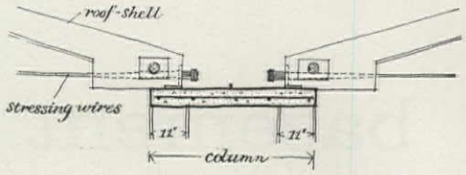
Shells and space

The architects managed in an ingenious design to wed two new structural forms in such a way as to satisfy deftly both the physical demands and the human, symbolistic needs of the enterprise. The broad plan was for a two-story building of repeating units, the first story to be an open, glass-walled, plaza-like floor for office and engineering functions, the second to be a closed-in, spaciously flexible floor for controlled-atmosphere manufacturing operations.

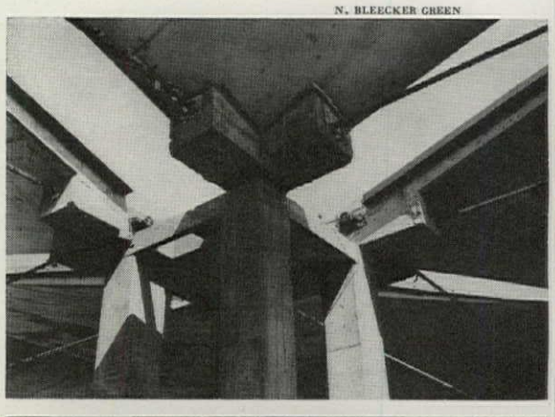
Between the two working floors, however, the architects placed a 9 foot high space-frame structure formed of reinforced concrete tetrapods to serve both as a strong, stable support for the manufacturing floor and as a unique frame for utility services. The space-frame structure, derived in principle from bridge trusses, and used mainly in steel heretofore, gets unusual strength and rigidity from an intricate, three-dimensional network of slender members so calculated to work together that they form a continuous space-framing web able to withstand large loads and stresses. And to cap the whole building plan and tie it together, the architects settled on a thin-shell concrete roof formed of repeated gable-like units, each consisting of four cast-in-place, warped, hyperbolic paraboloid slabs, supported at the four corners on thin columns. The four-sided units, joined together, form huge, 63 foot square bays between the columns, 42 of them making a four-acre roof covering over seven acres of uncluttered floor space. Six bays left unroofed in the center form two garden courts, green oases visible from both floors.

The result was not merely a striking, unconventional design but an efficient one, into which the mechanical maze of modern industry was fitted as unobtrusively as internal body organs. The between-floors space frame or upstairs basement carries all storage, piping, and conduits for all necessary services, including power, heat, light, water, solvents and rare gases. These facilities are easy to get to for maintainance; each service leads to any working area through some 3,000 access ports spaced 10½ feet apart. Thus, this upstairs basement serves both levels, eliminating all overhead clutter. The columns supporting the roof shells form hollow squares through which are led not only drainage pipes from the roof and sprinkler system, but also all air-conditioning and ventilation conduits. The effect is one of flexible space marked by distinctive design, creating a stimulating, yet easy atmosphere.

The total cost of the plant, for which ground was broken in February 1957, was some $5 million, or about $16 per square foot of floor space. But in many other less tangible ways it is a highly economic structure, for it is tailored to meet efficiently and humanly a specific industrial purpose, with incalculably large pay-offs in company identification and productivity. It is architecture's best answer to the monotonous, standardized packaged plant, for it is a prototype only in the sense that it shows the way to adapt a large range of new structural principles to individual industrial needs, each requiring a different answer for the more demanding industrial plants of the future./END

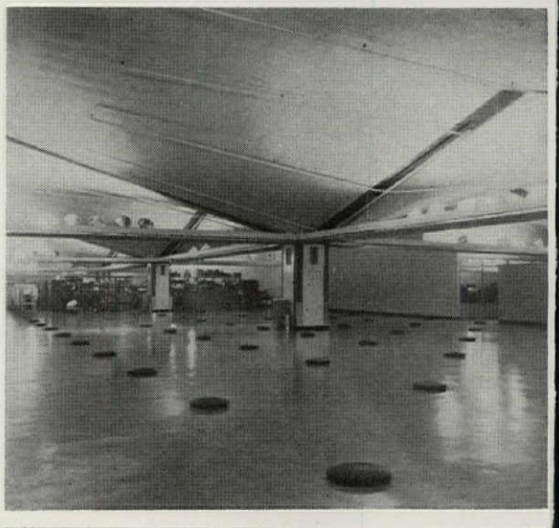


N. BLEECKER GREEN

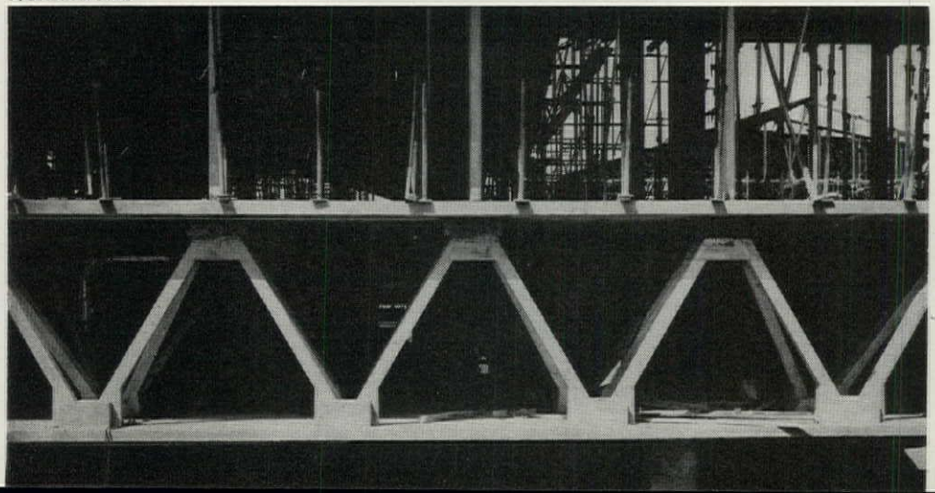


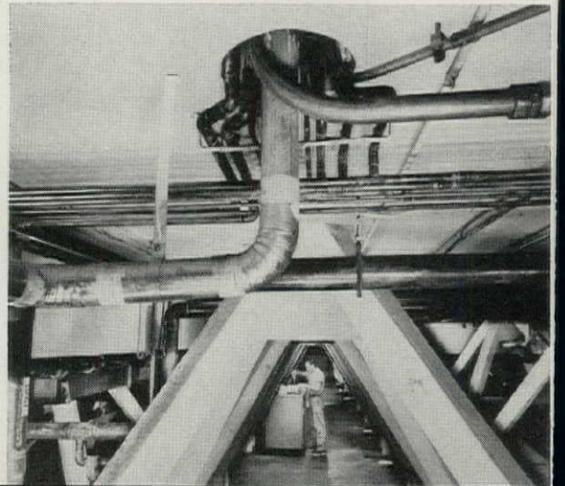


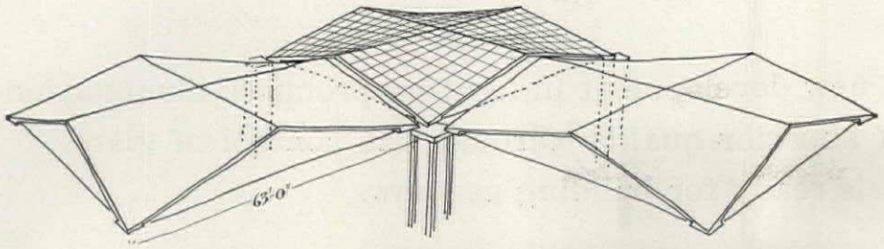
ULRIC MEISEL;



N. BLEECKER GREEN









UNDULATING ROOF of Texas Instruments plant is composed of thin-shell concrete hyperbolic paraboloid units, as shown in dotted line on roof plan above. Each unit is made up of four cast-in-place warped slabs, joined together to form gablelike peaks, supported at four corners on slender columns, and spanning an area 63 feet square. Units were cast against reusable forms, are 3 inches thick in large areas, 5 to 9 inches at ridges and edges.

Interior of the shell roof, shown in details and pictures on opposite page, provides a pleasing ceiling pattern as well as structural integration for lighting and air-conditioning system. Two-and-a-half-foot spaces between roof units (right) were filled in with insulation board. The roof's supporting columns formed hollow squares in which behind paneling, are all ventilation, air-conditioning, and climate-control conduits.

UTILITIES are fed up and down to working floors from the between - the - floors space - frame "basement," as shown in pictures opposite. From the space-frame area a maze of pipes and conduits for various utilities can be fed to almost any work area through some 3,000 access ports spaced 10½ feet apart in floors (shown capped in photograph). Storage space and facilities are available for supplying nearly 30 different utilities, including power at various levels, compressed air, water, acids and solvents, rare gases.

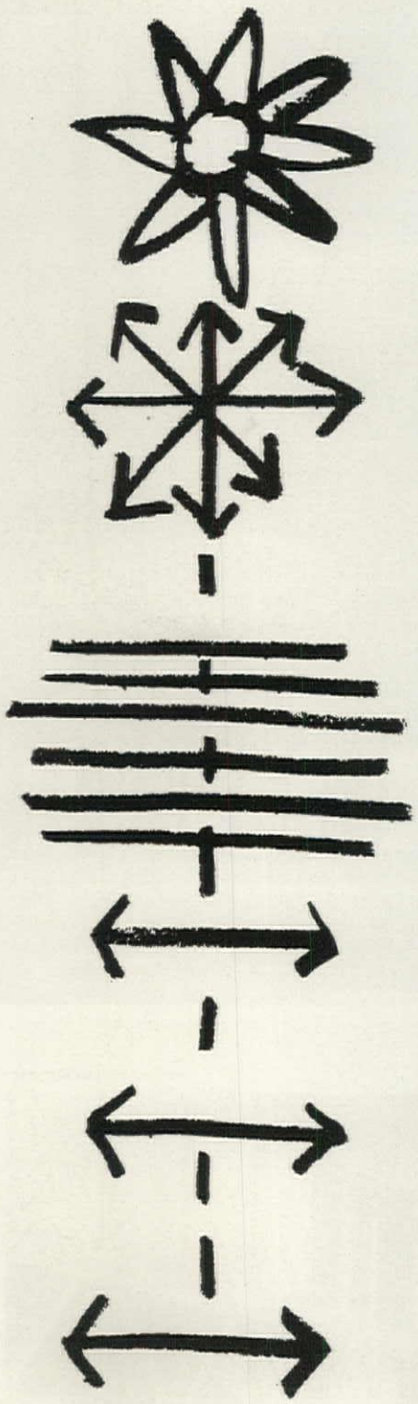
PHOTOS: N. BLEECKER GREEN



STRONG BUT LIGHT structural members are shown at an advanced stage of construction at right. Space-frame units were tied in to prestressed concrete floor and ceiling slabs with reinforcing rods. The upper manufacturing floor was sheathed in glass-fiber insulation and closed in at the sides with Georgia marble panels, to provide a completely controlled interior. END

A new development in lighting promises illumination of superior quality through the control of glare. It is ready for building use now.

Panels which polarize light



An important development is under way in the field of lighting. It involves the optical phenomenon of polarization, known for centuries to artists who turn their canvases northward in order to illuminate them with natural light of superior quality, i.e., north light, which is part-polarized as it refracts within the earth's atmosphere. The new development is concerned initially with artificial lighting and it is embodied in a thin, silvery panel of plastic-bonded glass flake. By a series of optical occurrences, the panel converts artificial, unpolarized light to light which is polarized. The effect in a room which is so lighted is illumination of low, consistent brightness and—most important—reduced glare.

Initially, the glass-flake polarizing panel will be installed in fluorescent-light fixtures, but the technique may be applicable later to any light source, including ordinary incandescent lamps and even sunlight. And as an element in an exterior curtain wall system, it will be possible to convert high-glare sunlight to relatively glare-free polarized light; one company in this field has stated that it intends to produce such panels for curtain walls. Moreover, the principle of polarization employed here, which is different from commonly-known methods of polarization, has potential applications in other areas: it appears that it may later be applied in the design and manufacture of incandescent bulbs, which then would emit polarized light; another potential adaptation would apply in the automotive field, enabling a sharp reduction in headlight glare. Indeed, the consequences of the new polarizing technique may be as far-reaching as any lighting development in the past decade.

THE MEANING OF POLARIZATION: A cross section of ordinary light (top sketch) looks like the spokes of a wheel, with energy bursting in all directions from its center. Polarization, by one of a number of techniques, screens out most of the spokes, allowing the energy to vibrate in only two directions, i.e., between two poles.

To grasp its real significance, one must understand a little of the principle of polarized light. Ordinary light, whether from the sun or from a bulb, is a pulsating mass of undisciplined energy. If it were possible to trap a single ray of it and then to slice out a cross section, the cross section would look something like a spoked wheel, for ordinary light vibrates in all directions and its vibrations have much the same relationship to the light ray as spokes have to a wheel. When light is polarized, on the other hand, it is allowed to vibrate in only two directions, between two opposing poles (as though all but two opposite spokes were removed from the wheel). Thus, it becomes what might be called disciplined energy. It carries correct color information to the eye, i.e., true colors of objects, and because it delivers only this information, without color dilution from the light source, it is a much simpler task for the eye to distinguish between one color and another: blacks are blacker, reds are redder, greens are greener. This occurrence—common to anyone who has worn polarized sunglasses—is due to the polarizer's ability to eliminate the washed-out shades (the extra spokes on the wheel), which do not contribute to seeing anyway. Thus, polarized light delivers only the true colors of the object in view.

There are, to be sure, many ways by which light can be polarized, including techniques which were known many years before the invention of the incandescent light. As a point of reference, the two techniques mentioned

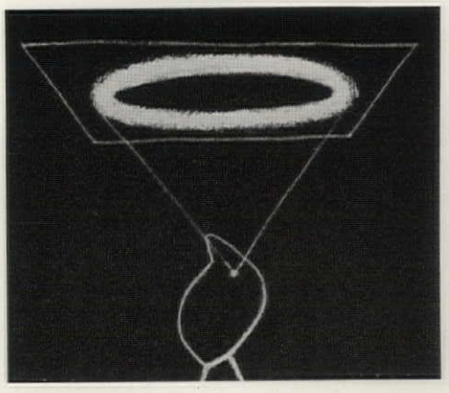
thus far—the new glass-flake panel and the familiar sunglasses—represent distinctly different ways of polarizing light: The panel polarizes the light before it is permitted to strike an object and reflect to the eye; the eyeglasses polarize the light after it has struck the object, on its route to the eye. There is another important distinction between the two: The panel is effective in room lighting, but the other is not. Linear polarization, the technique now commonly used in sunglasses, is not effective in room lighting, i.e., in sheets which cover ceiling fixtures, because too much light is kept out of the room: about 50 per cent of the light passing through such a polarizing panel is absorbed by it; furthermore, the light which is emitted comes straight through the polarizer, so that the user must receive the light at a particular angle with reference to its source if he is to make effective use of it. The panel of glass flake is said to absorb only about 5 per cent of the light, and moreover, the emitted light is diffused through the multi-layers of glass flake, yielding a broad, even level of brightness over the panel's face. This method of polarization, known as polarization by reflection and refraction, is the only polarizing technique to date which has been demonstrated to be both technically and economically practicable for room lighting. It was developed and patented by Polarized Lighting Inc., of Whitestone, New York. The panel itself is being produced and distributed this month by Owens-Corning Fiberglas under a license from Polarized Lighting; Fiberglas holds the patents on glass flake. In a few months, Alsynite Company of America, of San Diego, is expected to produce similar panels, under another licensing agreement with Polarized Lighting. (The two companies are reported to be in the process of merging.)

The probable impact of the development in the lighting field is perhaps best gauged by the market envisioned by the two producers: Fiberglas plans to be producing some 3 million square feet of the material per year within two years; Alsynite, which is looking toward additional applications beyond lighting fixtures, e.g., translucent window panes, curtain wall paneling, daylight control by skylights, hopes for an output in excess of 10 million square feet per year by 1960. The panels will be sold for an estimated $1 to $2 a sq. ft., in sizes 2 feet by 4 feet. These are rather bold visions, for the total U.S. output of lighting panels today is about 40 million square feet per year, representing a wide assortment of types, all non-polarizing and generally selling for less than the contemplated price of the new panels.

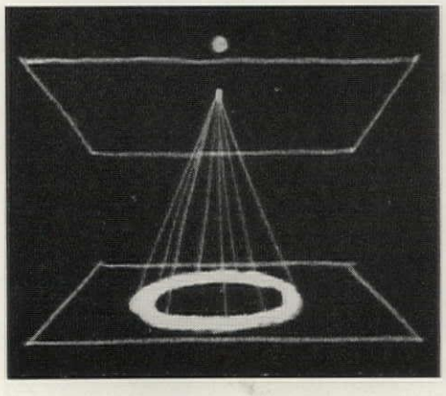
The trouble with glare

The factor which makes polarization seem promising for building is its ability to create an atmosphere which reduces glare and, thus, sharpens the contrasts among objects. Lighting Consultant Richard Kelly, long an espouser of polarized lighting, considers it a major development where visual acuity is important: in reading, sewing, specialized industrial tasks, i.e., "where it is essential for the individual to see clearly and comfortably." However, Kelly points out that visual acuity is only one part of lighting: "The panel is of less value where the primary problem is aesthetic." The inventor of the reflection-refraction technique, Alvin Marks, 47, who holds more than 80 patents in the field of polarization, believes that the panel adds a fourth control element to man's small arsenal of light-controlling devices. Thus far, says Marks, we have been able to control light's direction, its intensity, and its color; now, by controlling the direction of vibrations of light rays, i.e., by polarizing the light, we can control glare. It is glare, or, rather, the relative absence of it, which determines the amount of *usable* light produced by a light source. As an example, a 60-watt light source, if fully polarized, would yield visibility comparable to a more powerful unpolarized light source because, by reducing glare, the 60-watt source yields more usable light.

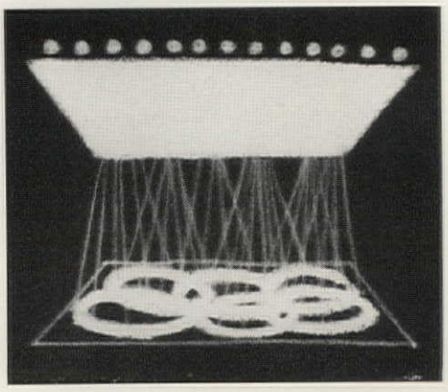
Glare, the Nemesis of light, ravages at the human eye in several ways, all of which cripple its ability to see. It occurs when glossy surfaces, such as the paper on this page, and shiny surfaces, such as a glass table-top, reflect images of bright unpolarized light sources. This is called reflected glare —"discomfort glare" by the light scientists—and it creates an uncomfortable haze which dilutes the contrast between printed characters and the page they are printed on and among objects of different colors; thus, re-



FULL POLARIZATION: In a room which is illuminated by 100 per cent polarized light (polarized by reflection-refraction, p. 138), each person sees no light directly overhead; surrounding the area of darkness is a wide-band halo of light. The optics of this polarization technique are such that nobody sees anyone else's halo only his own.



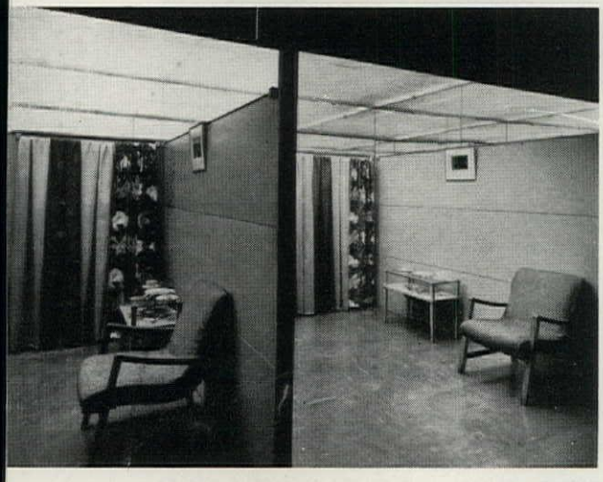
OPTICS OF THE HALO: Light which is 100 per cent polarized by reflection-refraction is emitted from every pinpoint source at an angle of 57 degrees. In effect, every source emits a cone-shaped spray of light, forming a thin circle of light on the surface it strikes (above). Thus, looking straight up, the eye sees no light, because all light is beaming out at an angle. But because there are an infinite number of tiny light sources overhead, each emitting light in a cone-shaped spray, every surface in the room is illuminated evenly (below). Further, all light is polarized.





CHRISTOPHER CERQUID

NATURAL HALO: Refraction of sunlight by a layer of hexagonal ice crystals some eight miles in the air creates an effect which is somwhat similar to the fully-polarizing panels (sketches, p. 136). Sunlight which strikes the crystals at a 22 degree angle is refracted and dispersed into its component spectral colors. To shield camera lens from the direct sunlight, the sun and half of the ice bow were obscured by the barn roof (foreground).



F. S. LINCOLN

THE EFFECT OF POLARIZED LIGHT: The small room at the left is illuminated by polarized light from reflection-refraction polarizing panels, developed experimentally by Sylvania; the room at the right is illuminated by conventional panels which do not polarize the light from the fluorescent light sources. Illumination levels are identical in the two rooms, but colors become sharper under polarized light.

flected glare makes it more difficult to see things. If the eye is aimed squarely at a source of unpolarized light, it picks up direct glare which causes the pupil to constrict and a general feeling of muscular tension, or "disability glare," if the source is very bright.

Both discomfort glare and disability glare are reduced most effectively when a glass-flake polarizing panel is inserted between the source of light and the room it illuminates. Further, the panel need not polarize all of the light admitted, although a high level of polarization, approaching 100 per cent, would create strange and wondrous effects (see p. 000). The first panels from Fiberglas will polarize some 30 to 40 per cent of the light they transmit, which is sufficient to yield a significant reduction in direct glare without much sacrifice of light efficiency. As for reflected glare, on the other hand, the panel producers are making no specific claims concerning its reduction; an important reason, surprisingly, is that there are no instruments for measuring the effect of reflected glare reduction, i.e., for measuring the increase in visual efficiency created by such a panel.

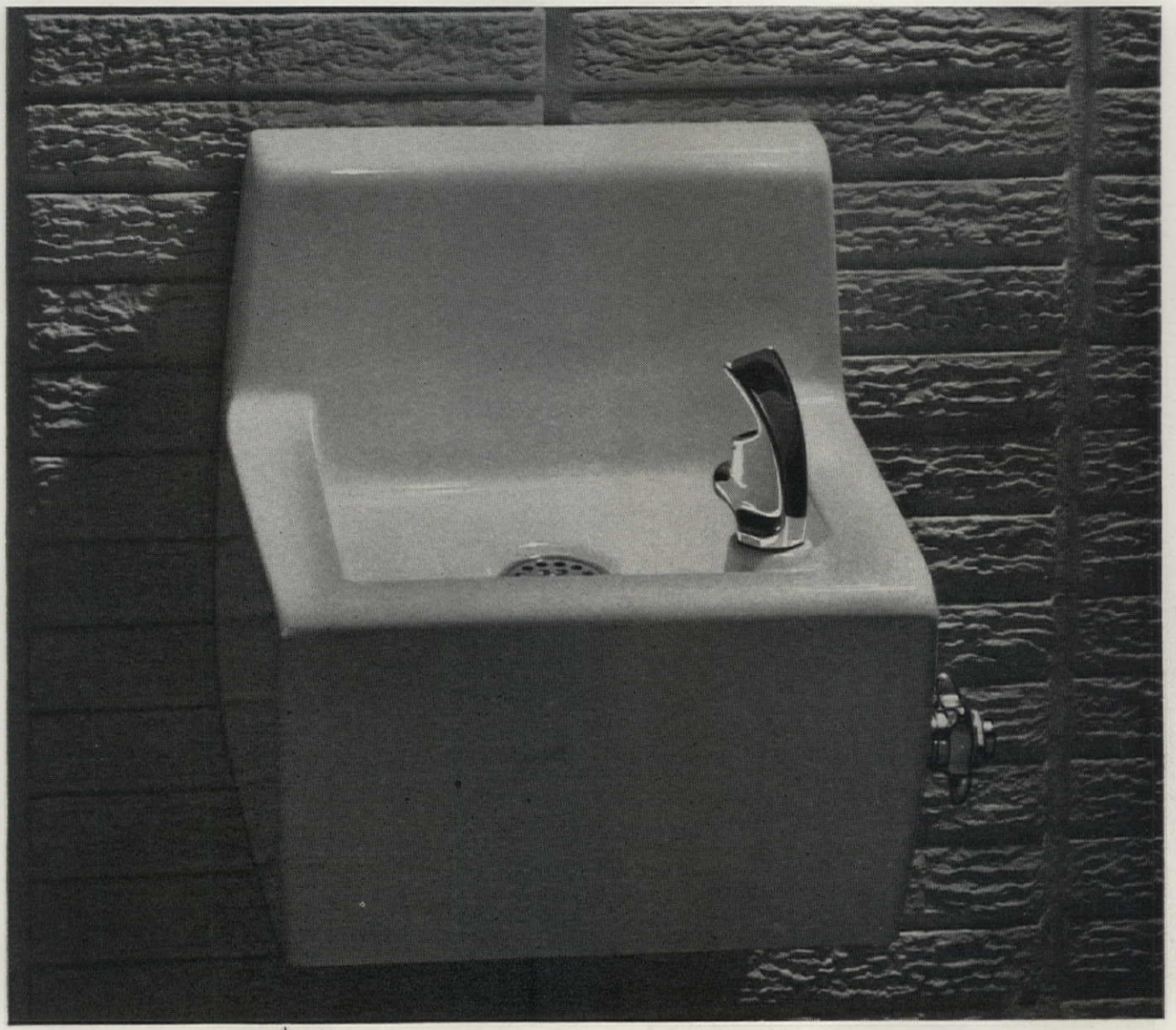
How to polarize

In understanding the effect of the glass-flake panel and how it manages to polarize a portion of the light it transmits, imagine that each of its myriad glass flakes is a flatish, irregularly shaped surface and that many layers of these are held together with air spaces between the layers by a transparent plastic cement. The glass flakes are so oriented that light cannot pass straight down through them; instead, due to the layers' alternating indices of refraction, the light must pass through the layers at angles of about 57 degrees, following a well-known phenomenon of optics. Light which strikes at any other angle is reflected back toward its source, bounced off a reflector and back again to the glass flakes, where another portion of it passes through. Not until it has oriented itself properly can the light pass through the flakes. Eventually, most of the light finds its way through the multiple-layers of flakes and air and into the room. The effect is to send polarized light into the room in a series of cone-shaped patterns; each tiny point on the panel is the source of a conical spray of polarized light. (In the Fiberglas panel, which does not polarize all light transmitted through it, the light seen directly overhead is unpolarized, having partially escaped the glass flakes and, instead, passed straight down; but it is light of low-brightness and sufficiently diffuses to be relatively glare-free.)

To everyman, his halo

The results in polarized lighting to date, though perhaps startling in some respects, are really quite conservative in comparison with what can result if Inventor Alvin Marks can achieve a higher level of polarization without excessive loss of illumination. This high level of polarization would involve increasing the number of glass flake surfaces through which light must pass as it is transmitted through the panel. The present panels, for example, transmit the light through some 16 layers of glass flake: the light passes through one layer of flake, then a layer of air, then another layer of flake, and so on. If it were to pass through 50 layers (again, flake, to air, to flake, etc.), the light would be completely glare-free, for all emitted light would be polarized. To be sure, the denser panel would have a lower efficiency, i.e., it would absorb more of the light transmitted through it, which at present would probably require an impractical power output. But because its emitted light is polarized, it would produce better quality light and, therefore, its *visual* efficiency would be superior. Looking directly overhead, one would see a round, dark spot, because no polarized light could be transmitted straight down from the source. And circling the spot would be a wide-band halo of light, reaching out to an angle of about 70 degrees from vertical. Thus, as a sort of spiritual bonus, a completely polarized-lighted room would provide each occupant with perfect light *plus* his own halo, which would follow him wherever he moved and would be visible only to its bearer, for the optics of reflection-refraction polarization are such that no man can see another's halo, only his own.

With polarization, and the highly promising phenomenon of electroluminescence, lighting's technological revolution seems only to be starting.

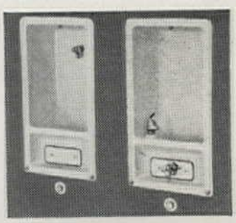




B-6965 SANITON: women's vitreous china, syphon jet wall-hung urinal.



B-6790 NOBLE: vitreous china wall-hung closet bowl.



B-4035-H PLANET: vitreous china fully-recessed combination drinking fountain and cuspidor.



B-3190-HS BYRON: 17" x 17" corner lavatory with 4" back, integral front.

THE SCULPTURED LOOK

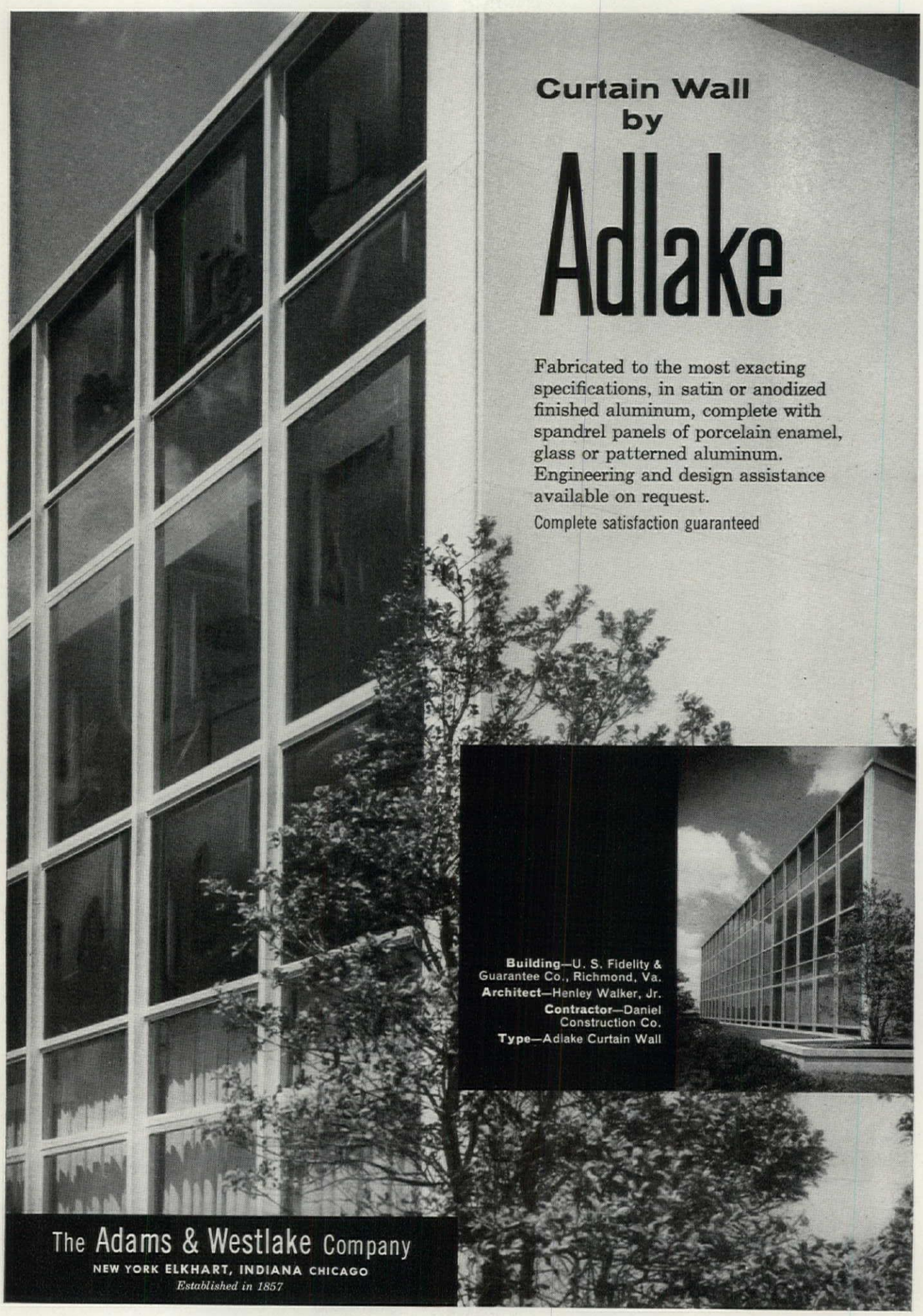
Briggs puts more than 70 years of vitreous china experience into the creation of an all-new commercial fixture line!

Symmetry, simplicity, and continuity of design! These characteristics are evident throughout the line of Briggs new commercial fixtures. Designed by Harley Earl, Inc., these high-density vitreous china fixtures are a product of Briggs skill and the standards set by more than 70 years' continuous experience in the manufacture of vitreous china products. Available in Briggs colors or white. Specifications on request.

A COMPLETE LINE OF PLUMBING FIXTURES FOR RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL USE

BRIGGS

BEAUTYWARE



Curtain Wall
by

Adlake

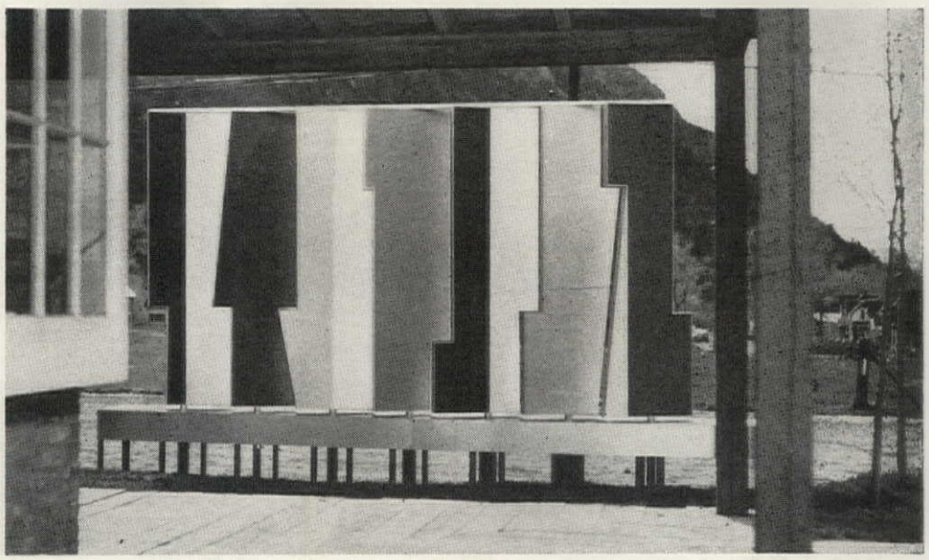
Fabricated to the most exacting specifications, in satin or anodized finished aluminum, complete with spandrel panels of porcelain enamel, glass or patterned aluminum. Engineering and design assistance available on request.

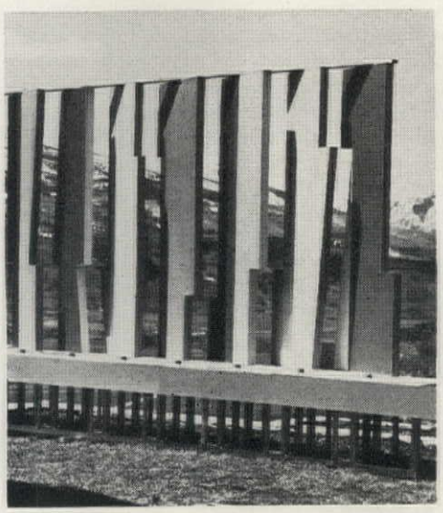
Complete satisfaction guaranteed

Building—U. S. Fidelity & Guarantee Co., Richmond, Va.
Architect—Henley Walker, Jr.
Contractor—Daniel Construction Co.
Type—Adlake Curtain Wall

The Adams & Westlake Company
NEW YORK ELKHART, INDIANA CHICAGO
Established in 1857

Dramatic aluminum sunscreen . . . vinyl-tough carpet . . . molded plastic bathroom . . . nailable concrete decking





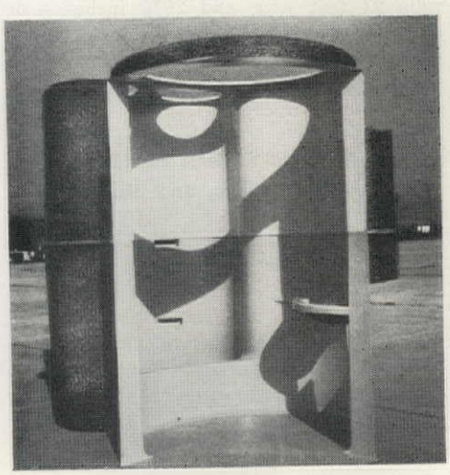
LOUVERED SUNSCREEN
may be used in curtain walls

With its *Kaleidoscreen,* a new multicolored swimming pool sun screen created by Herbert Bayer, the Aluminum Company of America has introduced: 1) a highly practical design concept for outdoor space dividers, and 2) a new aluminum-faced sheathing panel. More importantly, however, the screen may significantly influence future curtain-wall construction.

The 8-foot-high demonstration model shown above has seven odd-shaped leaves made of a 2-inch-thick structural material (foamed plastic sandwiched between two sheets of aluminum) soon to be put on sale for general construction use. To control sun, wind, or privacy, these leaves can be set at any angle with a base-mounted crank—or turned 180 degrees to fully expose either face. On one side of the screen the leaves are patterned with brilliant primary colors; on the other, they are left in natural, patterned aluminum.

Though only one Kaleidoscreen has been built thus far, Alcoa anticipates the future construction of large-scale models designed for hotel and motel patios, playgrounds, shopping centers, plazas, etc. The company also claims that development of a special neoprene gasketing system, to weatherproof the joints between leaves, will soon make the *Kaleidoscreen* applicable for building walls, or roofs. Thus an entire aluminum curtain wall could be opened like a Venetian blind onto a plaza or patio, or a convenient-sized unit could be unhitched from the building and rolled out to serve as a sun screen.

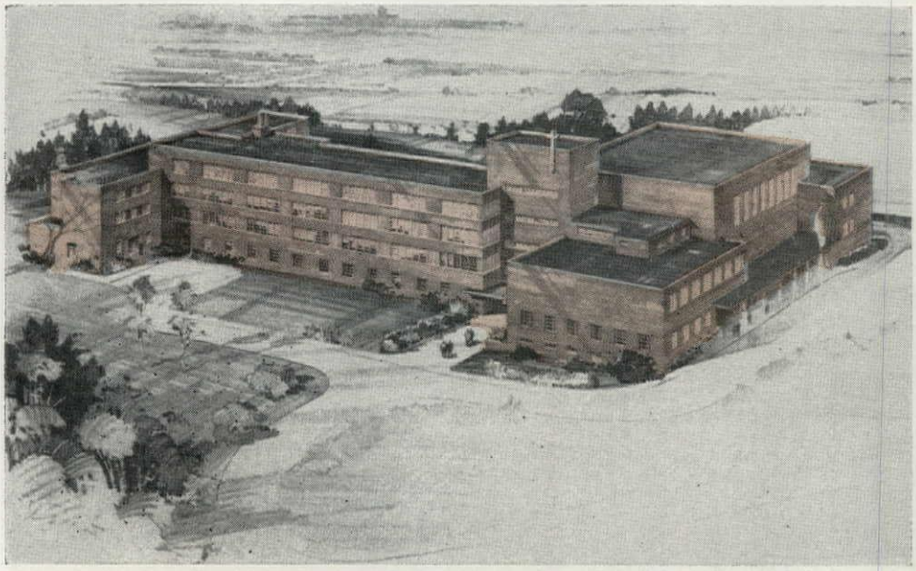
Manufacturer: Aluminum Company of America, 1501 Alcoa Bldg., Pittsburgh, Pa.
Fabricator: Stolle Corp., Sidney, Ohio.



SEAMLESS BATHROOMS
molded in one easy-to-clean unit

Complete lavatories with walls, basin, shower, toilet, and vanity all molded in one seamless unit are being produced on order by the Dudley Industrial Corporation of Hollister, California. Developed as the result of research on similar units for airplanes, the new lavatories (at left) are made of a noncorrosive, acid-resistant petrochemical ceramic (called *Glaceramic*) layed up in layers to a thickness of about ¼ of an inch. As there are no cracks to harbor dirt and water or develop leaks, and no grout to crumble loose, sanitary maintenance is quick and easy. (One unit proposed for service stations can be flushed out, much like a water closet, by merely opening a valve.) An average unit is 7½ feet high, with a 4-by-7 floor space, and weighs about 200 pounds—light enough to be picked up and placed in position by two men. The material has a high-gloss surface, can be produced in colors, and is unbreakable. It can be easily drilled or

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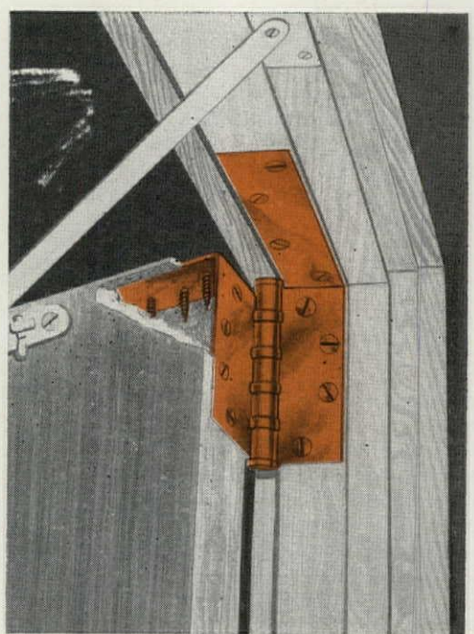
On the Archbishop Carroll High School, Washington, D.C., McKinney Anchor Hinges insure against damage to doors, jambs and hinges.

School ends costly door and hinge damage with McKinney ANCHOR HINGES*

Even though the original exterior door hinges had been replaced with heavier types, sagging doors and twisted hinges continued to be a costly problem at Archbishop Carroll High School, Washington, D.C. Then the school installed McKinney Anchor Hinges. After two and a half years Reverend Edward V. Stanford, Rector, says: "Since the installation of your Anchor Hinges we have had no further trouble. They seem to be as strong and serviceable as ever."

The McKinney Anchor Hinge was *designed* for rugged service . . . on schools, hospitals, stores, and all public buildings . . . wherever door holders or closers plus heavy traffic impose extra strain on doors, jambs and hinges. Size: 5" x 4½" with four oilite or ball bearings. For all doors, wood or metal, 1¾" to 2¼" thick. Wrought steel, solid brass or bronze in all standard finishes.

Write now for catalog 93 and templates. And specify McKinney Anchor Hinges on your next job.



Jamb leaf mortises into header, door leaf into top of door. Anchor plates and screws stay put, permanently, no matter how much strain is imposed by other hardware, heavy wind or careless door operation.

*Patent Pending

McKINNEY

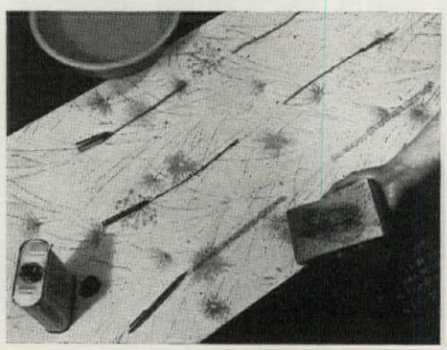
PITTSBURGH 33, PA. / IN CANADA: McKINNEY-SKILLCRAFT LTD., ST. CATHARINES, ONTARIO

sawed for inserting faucets, drains, electrical outlets, etc.—and no additional wall finish is required. Since all models are custom-formed to the architect's specifications, price depends on size, complexity of design, and quantity ordered. But an average lavatory, in quantities of 200 to 300 units, sells for about $300.

Manufacturer: Dudley Industrial Corp., Hollister, Calif.

STAINPROOF WALL CLOTH
is inexpensive and easy to apply

Later this month the Birge Company of Buffalo, New York, will put on sale a paper-thin, vinyl-impregnated wall-covering material that is lighter in weight and lower in cost than other vinyl "wallpapers" now on the market—and practically stainproof: lipstick smears, crayon, or pencil marks, inks, food stains, even heavy automotive grease can be quickly removed with soap and water (see photo below). Expected to have wide use in hotels, motels, hospitals, etc., the new material, *Fabrique*, is a nonwoven, 100 per cent textile cloth (in the manufacturing process textile fibers are laid down on a web, passed through liquid resins, and bonded under heat and pressure into an



interlaced, homogeneous fabric). Available in 131 combinations of 31 different designs, plus ten solid tints, *Fabrique* has a slightly embossed surface; it can be applied with ordinary wheat or cellulose paste and can be removed easily by loosening the corners and pulling off the entire strip. In addition, since the material is somewhat elastic and will expand or contract with the wall, strips can be simply butted at the joints; no overlapping is necessary. *Fabrique* will be marketed in rolls 21 feet long and 20½ inches wide and will sell for $3.20 to $3.85 per roll—or about 10¢ per square foot.

Manufacturer: Birge Co. Inc., 390 Niagara St., Buffalo 5, N.Y.

NYLON-TOUGH FLOOR FINISH
resists water, acids, and abrasion

Neodon-glas, a varnish-type, polyurethane-based plastic coating material for wood, metal, concrete, textiles, and plastics, is said to have an abrasion resistance and durability equal to that of nylon. Developed and manufactured in West Germany, it is now being marketed in this country

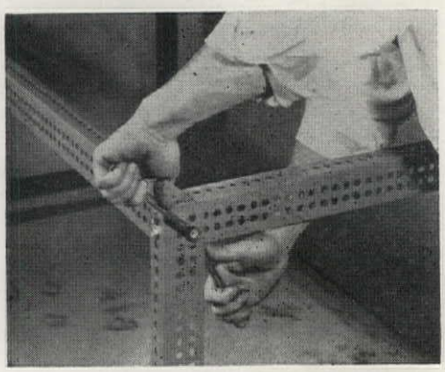
primarily as a protective finish for all types of floors. A clear (or colored) liquid, *Neodon-glas* is applied with brush or spray gun. It dries in five to six hours and leaves a high-gloss, enamel-hard, nonslippery surface reportedly unaffected by water, dirt, petroleum, most acids, and wear. In one demonstration at a trade fair abroad, a floor of ordinary newsprint coated with *Neodon-glas* showed no signs of wear despite continuously heavy traffic. Simple restoration of a coated floor surface is another advantage pointed to by the manufacturer: dull or worn areas may be repaired, without sanding, by merely brushing on another layer. Approximate cost of a *Neodon-glas* finish: 3¢ a square foot.

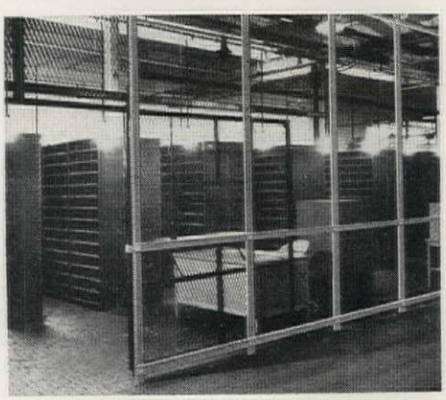
Manufacturer: Neodon - Lackfabrik, Krumbach, Schwaben, West Germany.

U.S. Distributor: Fred T. Schorle. 1133 Broadway, New York, N.Y.

MULTIPURPOSE STEEL FRAMING
prepunched for fast, simple assembly

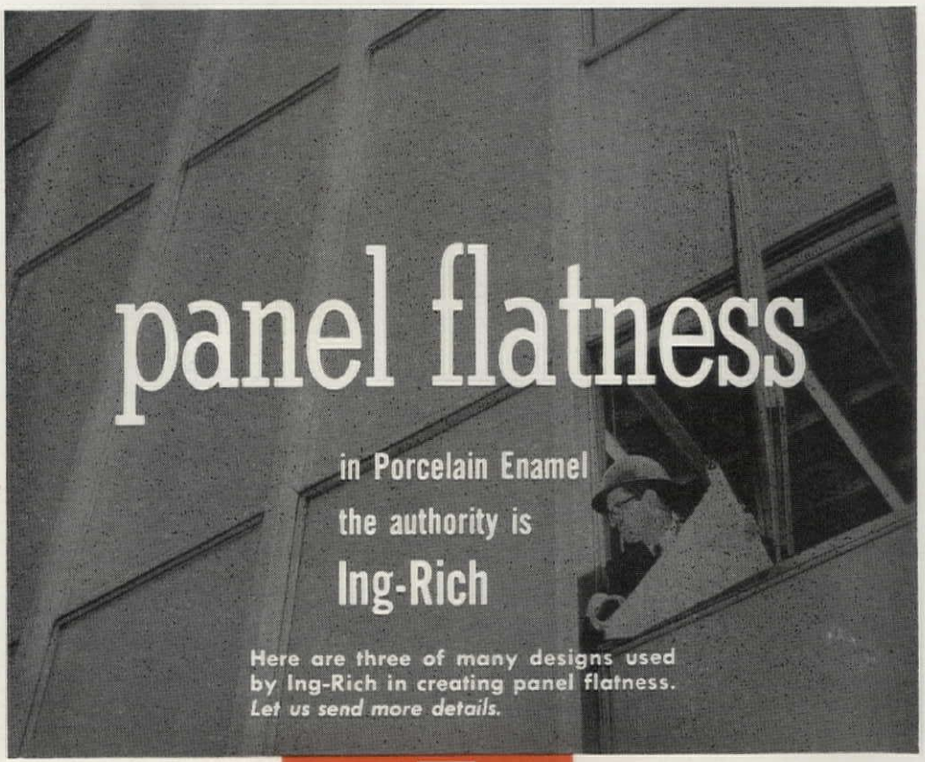
Scaffolding, catwalks, work tables, storage racks, partition framing, and a wide variety of heavy-duty steel frameworks can be formed easily and economically with *Bild-A-Flex*, Republic Steel's new steel





framing. Constructing a *Bild-A-Flex* framework is much like assembling a child's Erector Set: a worker simply cuts appropriate lengths and bolts them together through prepunched slots. Scrap loss is negligible since left-over lengths can be joined together or used as braces; and assemblies can be quickly dismantled and parts reused. Suitable for outdoor or indoor constructions, *Bild-A-Flex* is bond-

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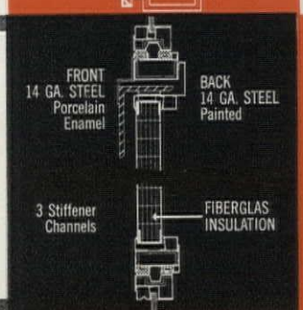
Honeycomb backed



Ford Central Staff Office

Surfaces vary not more than 1/16" in any direction over 15 square feet. Exceptionally rigid construction and strong in cross section—with all components laminated.

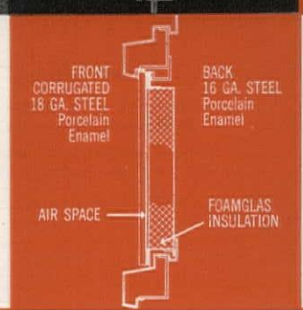
Areas up to 50 sq. ft.



U. S. STEEL, Homestead Works Office

4' wide by 12' high, this is the largest insulated panel yet made for architecture. Channelled framework on edges, and three interior stiffeners aid flatness and rigidity.

Corrugated



RCA Cherry Hill

Corrugated sheets create texture and uniform appearance. From a distance of 200' the effect is of flatness without highlights. Panels are 7'10" wide x 3'3" high.



Get this New Guide to Panel Flatness

Ingram-Richardson Manufacturing Company
BEAVER FALLS, 20, PENNA.
Member, Architectural Division, Porcelain Enamel Institute

Excerpt from Feb. 10th issue of NEWSWEEK

When employes itch, they scratch—and in the process they cost U.S. industry an estimated $100 million a year.

Industrial dermatitis, ranging from falling hair and simple rashes to clusters of boils that are slow to heal, may be caused by any chemical compound that the worker handles, from metallic salts to fat solvents. But with today's constant changes in industrial techniques, company skin specialists must keep a constant watch for new, obscure occupational irritants, warned Dr. Donald J. Birmingham, chief dermatologist of the U.S. Public Health Service at Cincinnati.

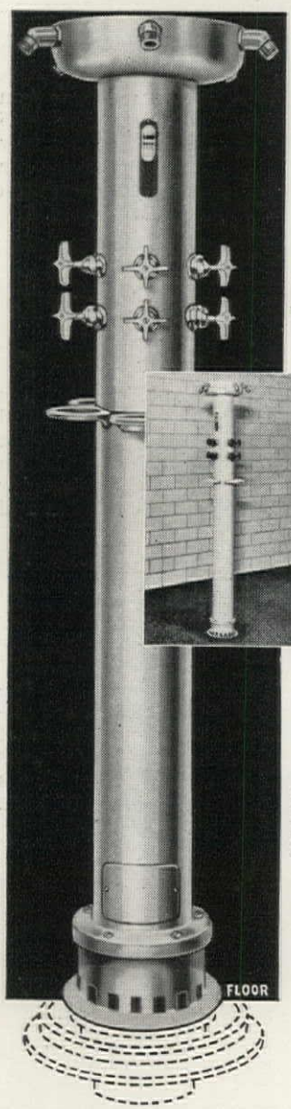
The most reliable preventive measures, according to dermatologist James W. Jordon of Buffalo, N.Y., are: Air conditioning, to get rid of dust to which some workers are sensitive; protective clothing (such as heavy aprons, helmets, and gloves that fit into detachable sleeves), and showers before leaving work.

"SHOWER BATHING... before leaving"

Reliable preventive measure against industrial dermatitis

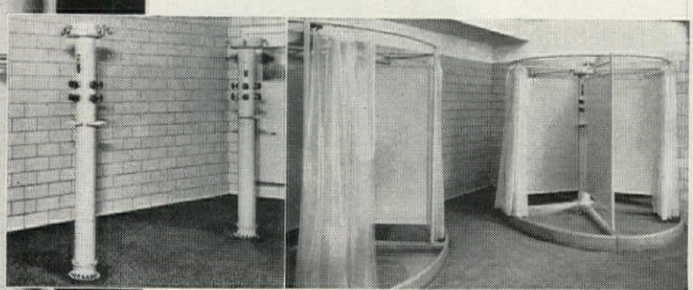
Included in the preventive measures mentioned by dermatologist specialists—"Shower before leaving work" is important.

INSTALL BRADLEY SHOWERS NOW



Bradley Multi-Person Shower Units come partially assembled, saving installation time and expense. One Bradley Column provides up to 5 showers with each bather having complete control of water volume and temperature. Only *one* set of piping connections required for each 3- or 5-unit Shower.

Columns alone are used without stall separating panels; while where greater privacy is desired, partitions divide the unit into separate stalls furnished with or without curtains.



Above, at left: Shower Columns without stall partitions are illustrated.

Above: Bradley multi-person Shower with partitions and curtains.



Write for Catalog 5601 which includes all dimensional data.

Catalog 5601 includes illustrations, dimension data, and complete specifications. Why not let us mail you a copy. BRADLEY WASHFOUNTAIN CO., 2235 W. Michigan St., Milwaukee 1, Wis.

BRADLEY *multi-person* SHOWERS

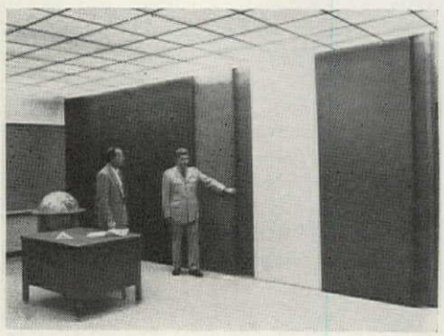
Distributed Through Plumbing Wholesalers

erized and finished with gray baked enamel. Ten sections of 10 or 12 foot lengths, plus 75 sets of matched bolts cost about $30.

Manufacturer: Republic Steel Corp., Berger Div., 1038 Belden Ave., N.E. Canton 5, Ohio.

STEEL BLACKBOARDS
serve as sliding panels and doors

Steel blackboards which also serve as sliding closet doors, floor-to-ceiling wall panels, and projection screens are being installed at the U.S. Air Force Academy

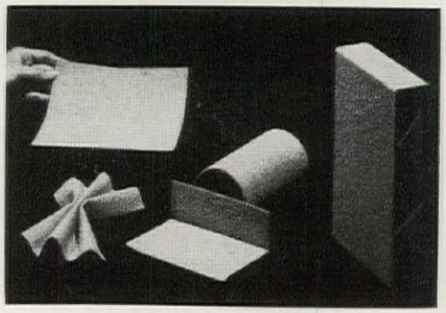


at Colorado Springs, Colorado. (A model classroom is shown above.) Composed of a smooth-surfaced sheet metal (U.S. Steel's *Vitrenamel*) faced with a gray enamel coating and backed with 1 inch plywood, these blackboards are said to offer three significant advantages over standard slate types: 1) they will last as long as the building itself; 2) there is no squeak or chatter from chalk; and 3) by using small magnets an instructor can attach maps, photos, charts, etc., directly to the boards. Comparable panel-type units, made to order, cost about $1 to $1.75 a square foot, excluding sliding mechanism and other fittings.

Manufacturer: Enamel Products Co., 341 Eddy Rd., Cleveland 8, Ohio.

CORK-AND-PLASTIC CARPET
is as tough as vinyl or asphalt tiles

Scotch-Tred, a resilient, textured floor-covering material being introduced by the Minnesota Mining & Manufacturing Co., is as silent to walk on as carpeting, yet, according to the manufacturer's wear tests, as durable as most asphalt or vinyl floor tiles now on the market. Designed to provide nonslip traction (even when wet or oily) for walks, ramps, stairs, showers, locker rooms, etc., *Scotch-Tred* has a bonded-particle (mostly cork) surface, a



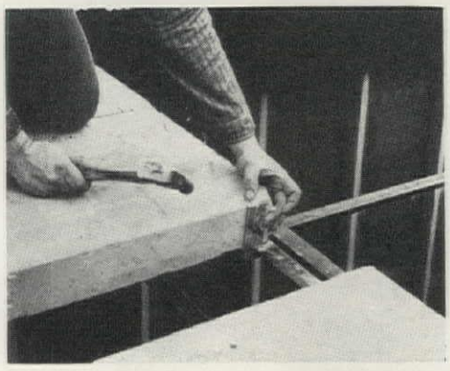
stable plastic film backing with a built-in waterproof adhesive. Over-all thickness: 0.045 inches. For application, a protective backliner is first stripped off and the highly flexible material is pressed onto a clean, dry surface. *Scotch-Tred* is now available in three colors—beige, black, and gray—in standard 96 foot rolls and in tiles 9 inches square. Cost: about 60¢ a square foot.

Manufacturer: Minnesota Mining & Manufacturing Co., 900 Bush St., St. Paul 6, Minn.

LIGHTWEIGHT ROOF PANEL
made of precast, cellular concrete

A precast, cellular concrete panel that is light enough to float, yet strong enough to bear loads up to 260 pounds per square foot, has been put on the market as an economical, easy-to-handle roof decking material for spans up to 80 inches. Made of *Calsi-Crete* — an oven-baked blend of cement, silica flour, cellulous fibers, plastic foam, wire mesh, and other materials—these buff-white, smooth-faced





panels (above) provide a 3½ inch thick deck that is fire-resistant, rotproof, weatherproof, and (due to the millions of air cells trapped within the material) insulating.

Calsi-Crete can be sawn, nailed, drilled, or hewn like wood. It is unaffected by fungus or temperature extremes—and for exposed ceilings can be painted, plastered, or left as is. *Calsi-Crete's* light weight (10½ pounds per square foot, or 120 pounds per panel) is said to speed and ease installation, reduce shipping and labor-handling costs, and enable simpler and lighter structural framing than required for a built-up roof of metal decking, waterproofing, and insulation. Panel size: 3½ by 20 by 80 inches. Cost: about 60¢ a square foot.

Manufacturer: Pacific Materials Corp., 6306 N. Cicero Ave., Chicago, Ill. END

the leaders in lighting CONTROL SOUND with NEW SOUNDSHEET

Luminous ceilings inc. by CONTREX



Acusti-Luminous Ceiling with Corrugated Soundsheet. IBM Showroom, Chicago. Architect: Shaw, Metz & Dolio.



Smithcraft Overall Illumination with Corrugated Soundsheet, Engineering Lab, Tufts U., Medford, Mass. Architect: W. A. Pollack, NEGEA Service Corp., Cambridge.



Sylvan-Aire Translighted Ceiling with Corrugated Soundsheet. Drafting Room, typical of Soundsheet's many applications.



Wakefield Ceiling '58 with Flat Soundsheet. Office area, The Mills Company, Cleveland. Architect: John T. Kelly, Cleveland.

"The miracle of sound and sight", Contrex Soundsheet Translucent Acoustical Element, is a basic architectural tool — featured in the lighting and acoustical equipment of the nation's leading manufacturers.

Soundsheet has *unlimited applications*, because it is the only medium that successfully combines acoustical and light diffusing properties.

Attractive in appearance, competitive in cost, easy to install, and washable, Soundsheet is now available in corrugated or flat sheets, translucent or opaque, in white or color.

SOUNDSHEET is featured in the lighting equipment of: The Wakefield Co., Vermilion, Ohio; Luminous Ceilings Inc., Chicago, Ill.; Smithcraft Lighting Div., Chelsea, Mass.; Sylvania Electric Products, Wheeling, W. Va.; Fullerton Manufacturing Co., Norwalk, Conn.; Litecraft Manufacturing Corp., Passaic, N. J.; Lumenated Ceiling Div., Thermotank Inc, Detroit, Mich.; Wakefield Lighting Ltd., London, Ontario, Canada; Lighting Products Inc., Highland Park, Ill.; Lumi-Lucent Ceilings Co., Cleveland, Ohio; Canadian Westinghouse Supply Co. Ltd., Montreal, Canada; Louverall Lighting Corp., Beverly Hills, Calif.

Developed for Contrex by Bolt Beranek and Newman Inc.

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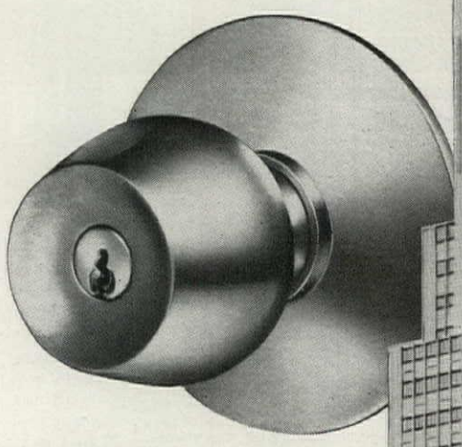
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Builder: Sam Minskoff & Sons, Inc.

LOCKWOOD

Lockwood Hardware Manufacturing Co., Fitchburg, Mass.



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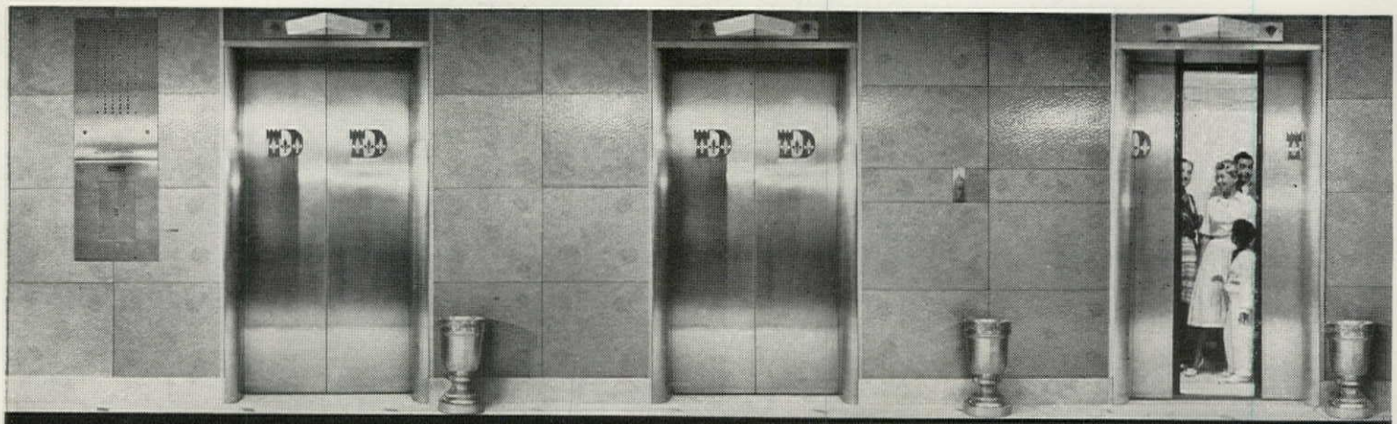
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No threatening door action—doors remain open and motionless



Doors close only after last passenger leaves

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in Miami Beach, Florida, not only provides the finest accommodations but also the finest elevator service for its guests. Next time you're in Miami Beach, visit the Deauville and see for yourself just how Traffic Sentinel controlled doors lend a touch of magic to elevatoring.

Owner-Management: Morris Lansburgh—Sam Cohen
Architect: Melvin Grossman, A.I.A.
Contractor: Taylor Construction Co.



MAGIC IN MIAMI

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CONTROLS ALL ELEVATOR DOORS ELECTRONICALLY AT THE DEAUVILLE HOTEL

One of Miami Beach's largest luxury hotels, the Deauville, is the first major hotel in that resort playground to install a completely *operatorless* elevator system. In addition to the sound economics of operatorless elevators, there are so many passenger benefits to be gained. For example, all passenger elevators are equipped with "magic" Traffic Sentinel door controls. This means maximum passenger convenience and safety because doors are controlled entirely by passenger movement—and not by the whim of an operator.

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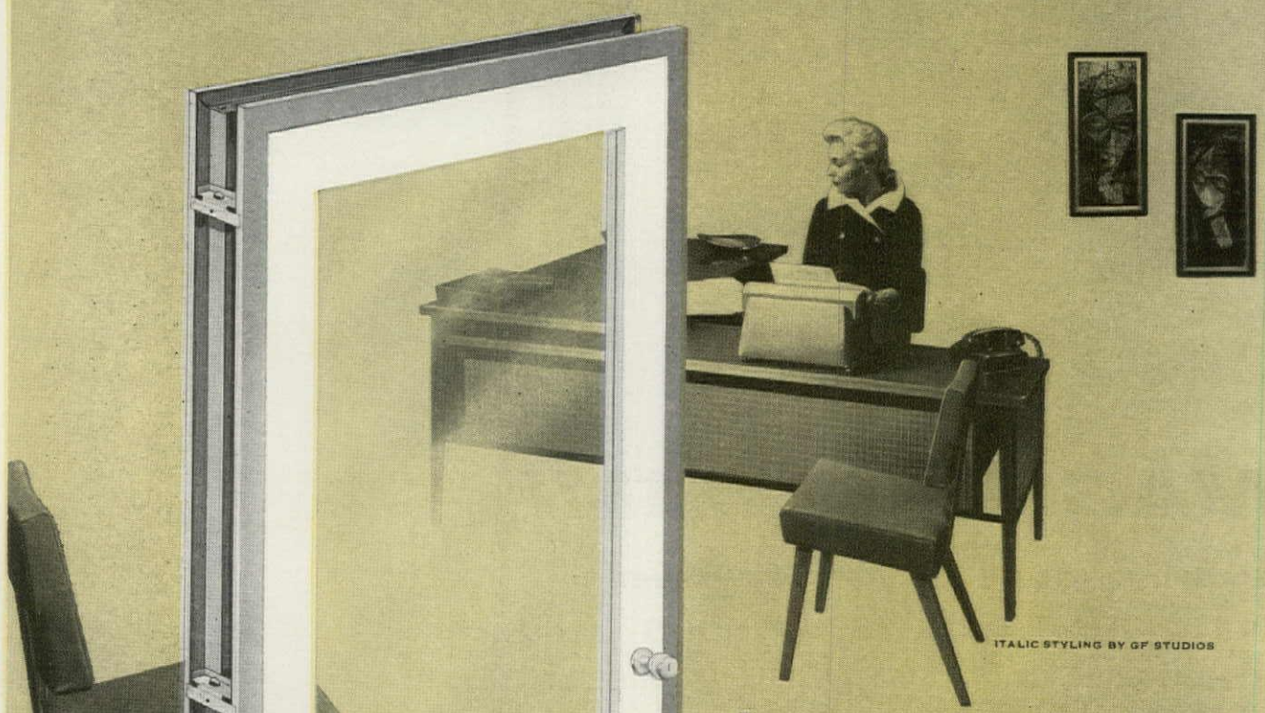
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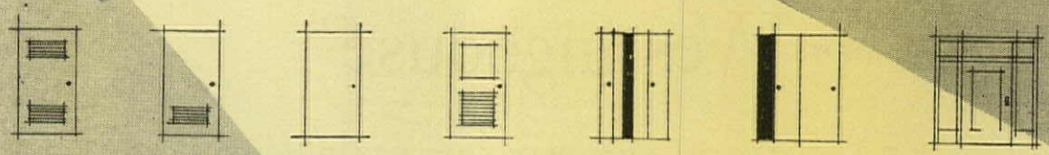
ITALIC STYLING BY GF STUDIOS

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Books

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SCHOOL NEEDS IN THE DECADE AHEAD. By Roger A. Freeman. Published by The Institute for Social Science Research, 917 15 St., Washington 5, D. C. 273 pp. 6" x 9". Illus. $5.

The amount America spends on schools in the next decade, says Roger Freeman, "depends, above all, on how efficiently school funds are spent." Freeman, who was research director for the Education Committee of President Eisenhower's Commission on Intergovernmental Relations, feels that "large amounts are presently wasted on education." But he thinks that if schools will only "concentrate on subject-matter teaching and eliminate frills, the quality of school education will be lifted but school funds will not need to rise much beyond the growth rate of the national income."

Many things are wrong with public education in America, says Freeman, but lack of money is not one of them. He finds that Americans have loyally and faithfully supported their schools, that the classroom shortage—"greatly exaggerated"—is nowhere near so bad as that in Russia and other European school systems, and that, relatively, our teachers are far better off than they were 30 years ago. In fact, he figures we are employing 100,000 more teachers than we need to.

However well-intentioned Freeman's arguments for efficiency may be, his book will be misused. For it plays directly into the hands of those extremists who would like nothing better than to see U.S. public education cut back to a barebones diet.

COMPOSITE CONSTRUCTION IN STEEL AND CONCRETE FOR BRIDGES AND BUILDINGS. By Ivan M. Viest, R. S. Fountain, and R. C. Singleton. Published by McGraw Hill Book Co., New York, N.Y. 176 pp. Illus. $7.50.

This is an engineering manual on the design of steel beams and concrete slabs for composite construction, showing the advantages of the methods and covering design procedures and applications. Composite construction is a new technique, differing from the commonly used concrete slab-steel-beam type of construction: Instead of resting slabs on steel framing, the slabs in composite construction aid the steel beams in carrying the loads.

The book includes design equations, describes methods of connecting slabs to beams, and presents design methods for the three most commonly used shear connectors: studs, flexible channels, and spirals. Also included is a detailed discussion of a rapid method for the composite design of beams, which is illustrated by six complete examples.

PUBLIC AUTHORITY HOUSING. By A. W. Cleeve Barr, A.R.I.B.A. Published by B. T. Batsford Ltd., 4 Fitzhardinge St., Portman Square, London, W.1, England. 287 pp. 7½" x 10". Illus. About $15.

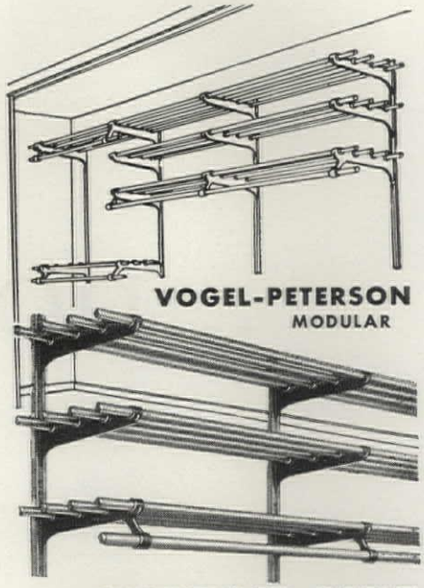
Each nation has its own erudite houser's talk—a special jargon that uses ordinary words—and this substantial new volume from England contains some terms which may well go in the U.S. too. "Total effective households" is a nice quiet one. There are others. But there is also a sound, readable coverage of what has happened in English public housing since World War II, and this is considerable. A good deal of the technical information applies only to the British Isles, of course, but a substantial section of the book consists of case studies of completed projects showing the broad approach to planning and design.

BUILDINGS FOR RESEARCH. By the Editors of Architectural Record. Published by F. W. Dodge Corp., 119 West 40th St., New York, N.Y. 224 pp. 9" x 11¾". Illus. $9.50.

Fast becoming the symbol of our technological age, research laboratories are developing into vast complexes of highly specialized workspaces which must be served by offices, shops, medical facilities, and at the same time humanized by such things as pleasant restaurants and recreation areas. This book brings together the most pertinent material on laboratory design published in the pages of *Architectural Record* since 1950, including 44 individual building projects and interpretive articles on special problems of planning and design.

PRE-STRESSED CONCRETE. Theory and Design. By R. H. Evans and E. W. Bennett. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York. 294 pp. Illus. $10.

The authors of this volume, both affiliated with the Department of Civil Engineering of the University of Leeds, England, have written it for two classes of reader: 1) those studying for university or professional examinations and 2) practicing designers. In Part I, the authors take up what is considered the common need of both classes: an exposition of the basic principles applying to all types of pre-stressed concrete structures. Part II deals with the design of simply supported beams, the aim being to bridge the gap between principles and practice. Part III provides an introduction to some of the more specialized types of pre-stressed structure, including indeterminite structures, liquid-retaining structures, domes and shells. END



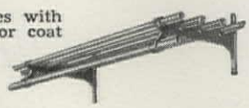
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MODULAR

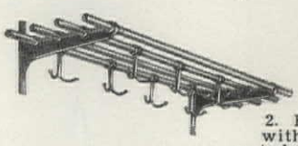
CUSTOM-LINE
Aluminum HAT and COAT RACKS

Tailored to fit any given wall area. Die cast aluminum brackets adjustable to exact centers . . . also adjustable as to height without removing from wall.

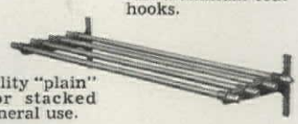
3 BASIC SHELVES

1. Hat shelves with hanger bar for coat hangers.



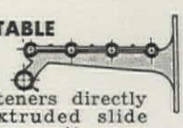


2. Hat shelves with staggered cast aluminum coat hooks.



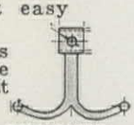
3. Hat or utility "plain" shelves for stacked tiers for general use.

RIGID OR ADJUSTABLE MOUNTING



Brackets mount with standard fasteners directly on wall or in extruded slide mountings that permit easy change of heights.

Cast aluminum coat hooks can be staggered along the bottom shelf to give great capacity in small space.



MODERN ANODIZED FINISHES

Tubing comes in clear, or gold color, deep etched anodized finishes . . . with closed ends. Cast aluminum brackets and hooks come in black, silver luster or brass hammertone finishes. All combinations available.

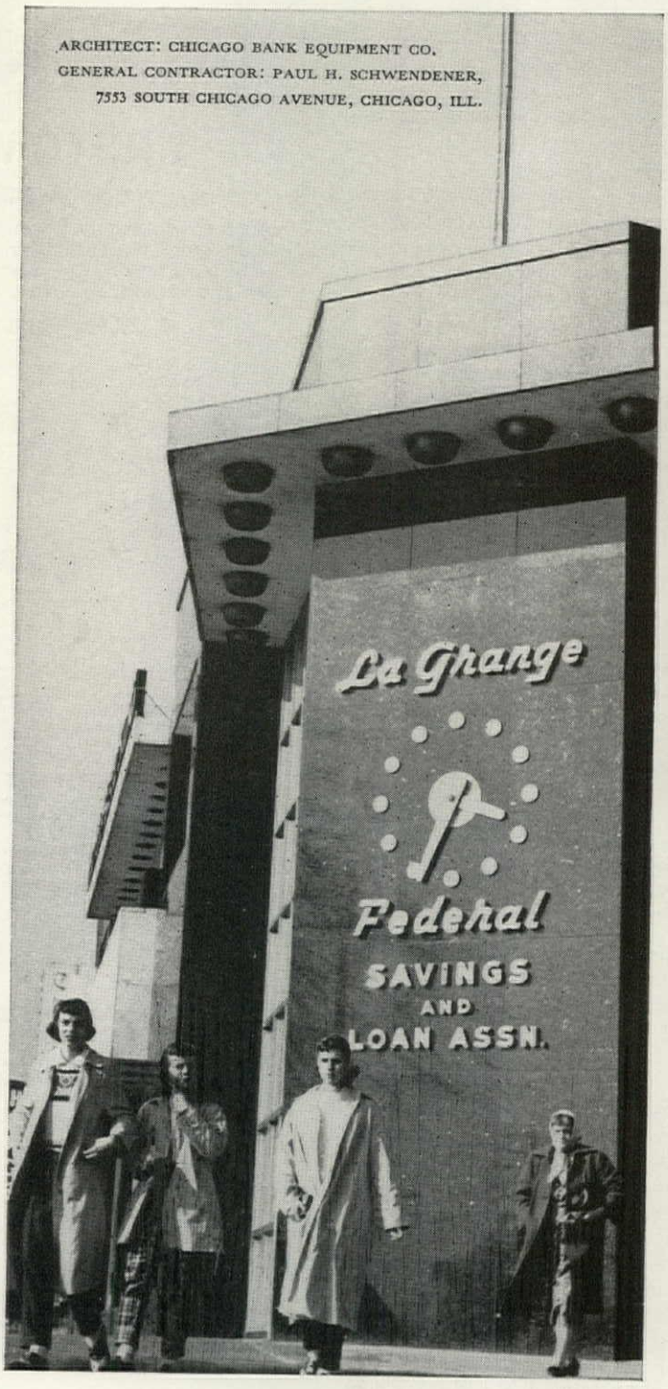
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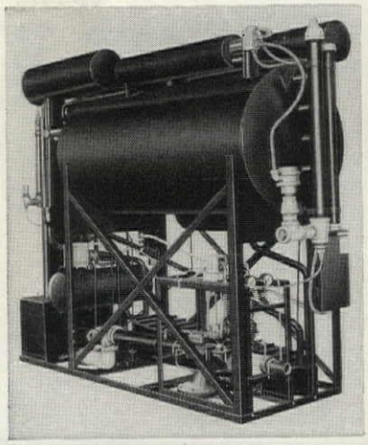


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With their new Arkla-Servel Gas Absorptive Cooler, the La Grange Federal Savings and Loan Association keeps customers cool in summer with the same compact system that keeps them warm in winter.

Before installing Gas, a complete study was made of available air conditioning systems. The Arkla-Servel unit—the only 25-ton absorptive cooler—was chosen because it is compact, easy to install, and costs are low for installation, operation and maintenance. No specially trained operating or maintenance personnel are required.

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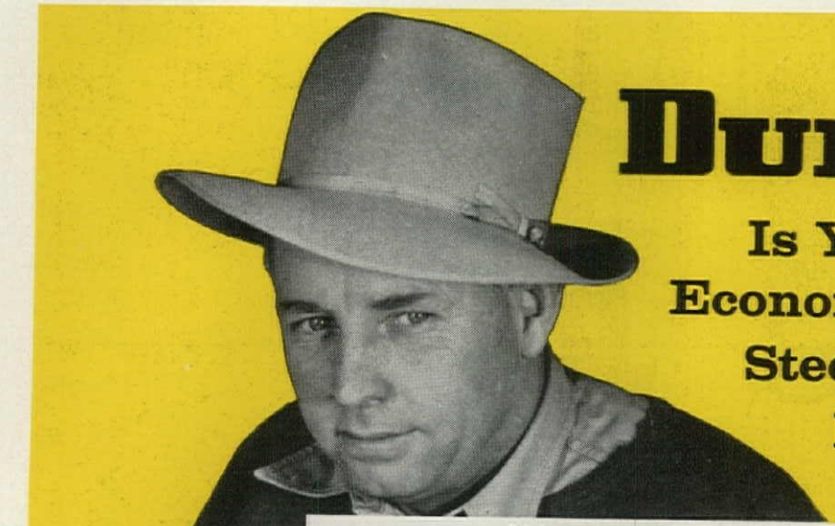
- high efficiency at all times—even during the light loads
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Gas absorptive cooling can put your commercial and industrial clients' heating plant on a year around paying basis. It utilizes low pressure steam to cool water, has no moving parts to wear out, and provides quiet, economical operation. What's more, it's vibration-free.

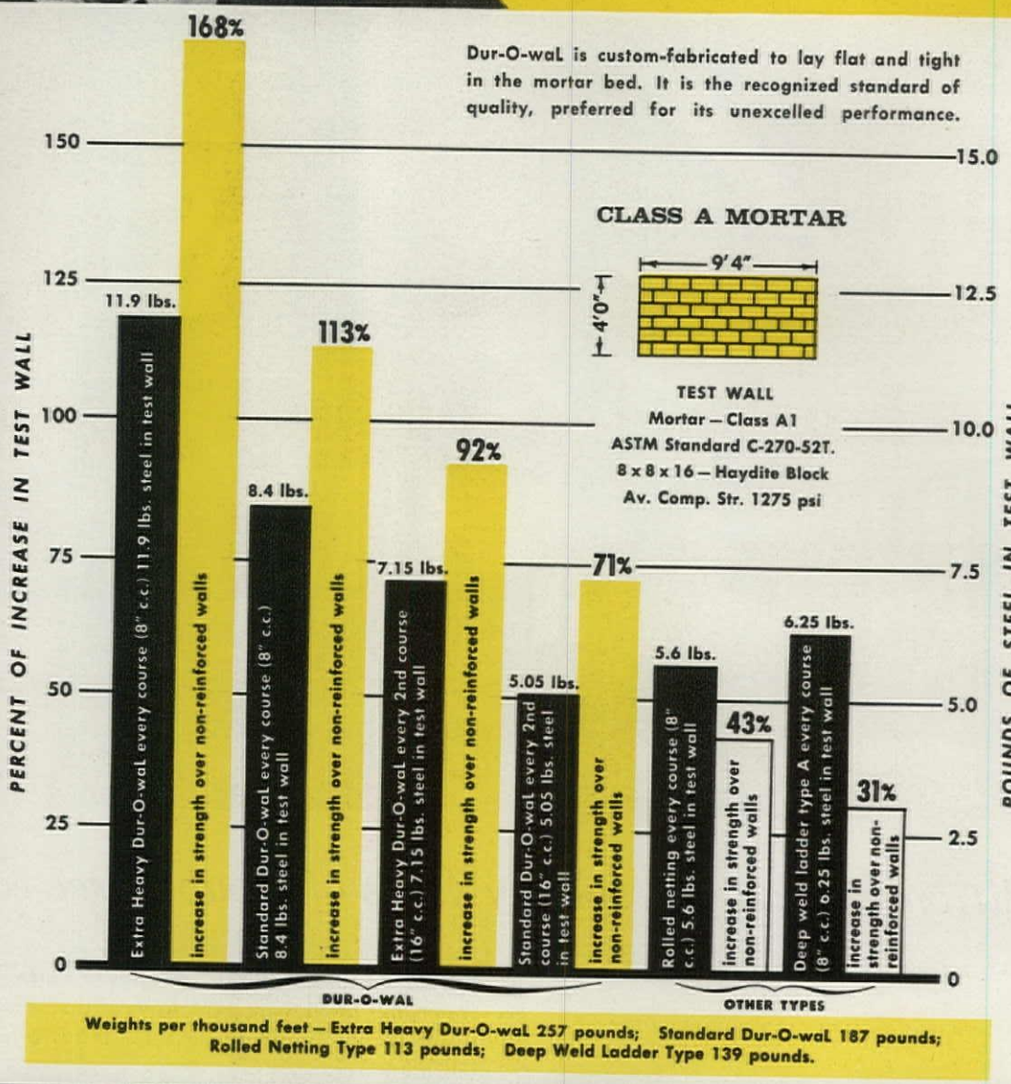
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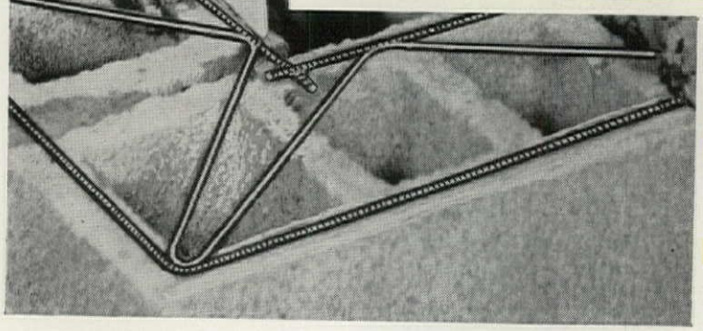
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Dur-O-wal is custom-fabricated to lay flat and tight in the mortar bed. It is the recognized standard of quality, preferred for its unexcelled performance.



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Tests Conducted by Toledo University Research Foundation

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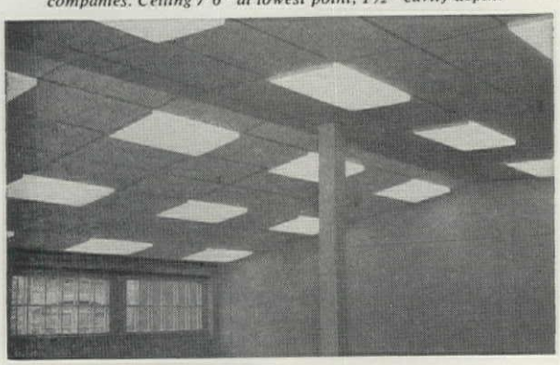


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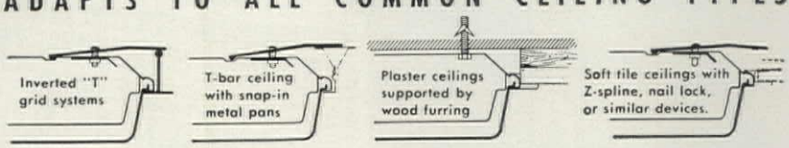


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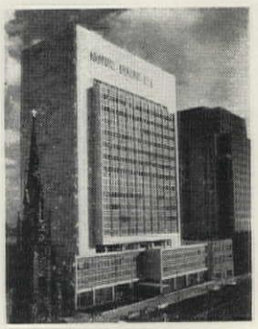
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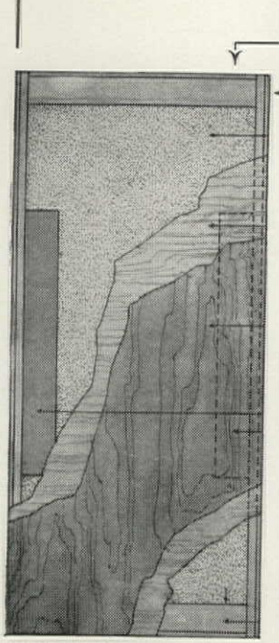
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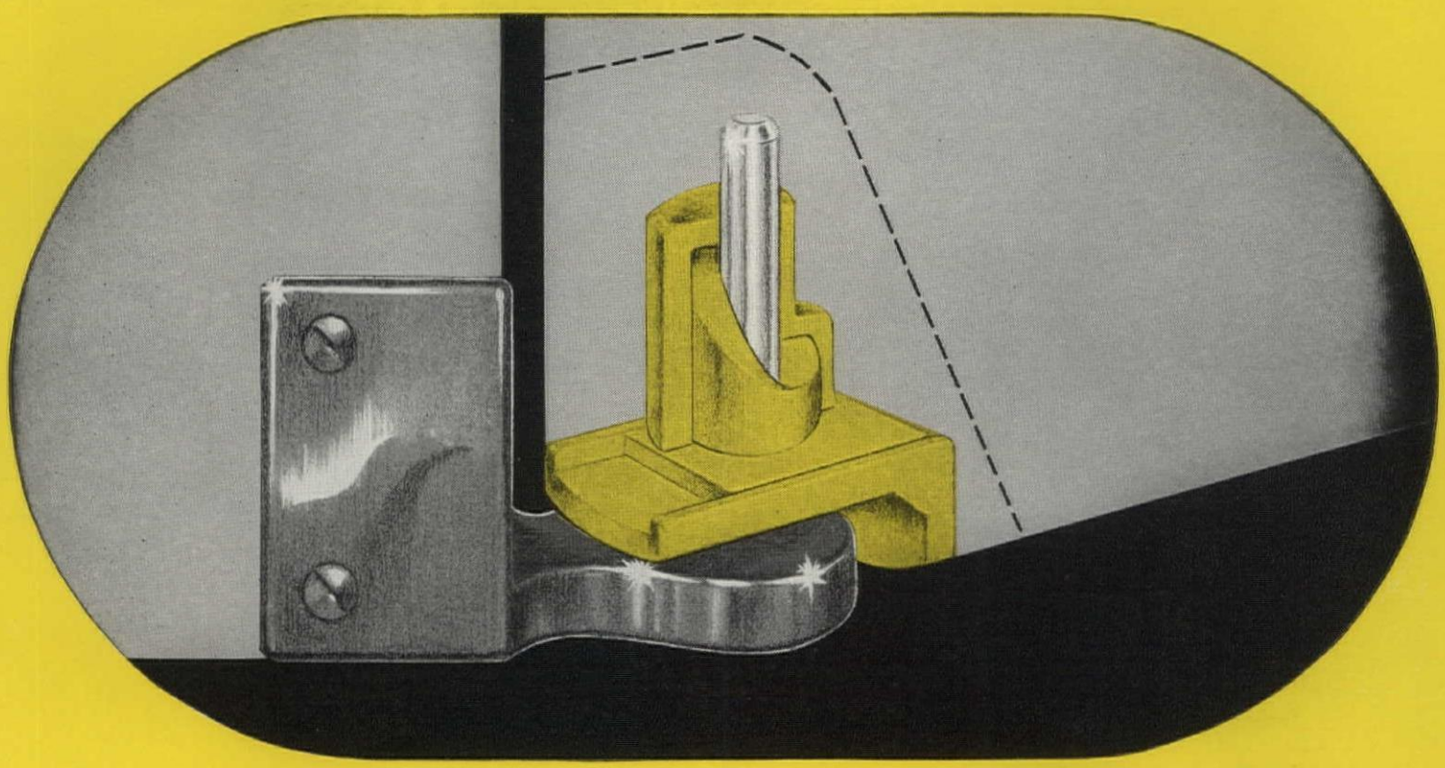
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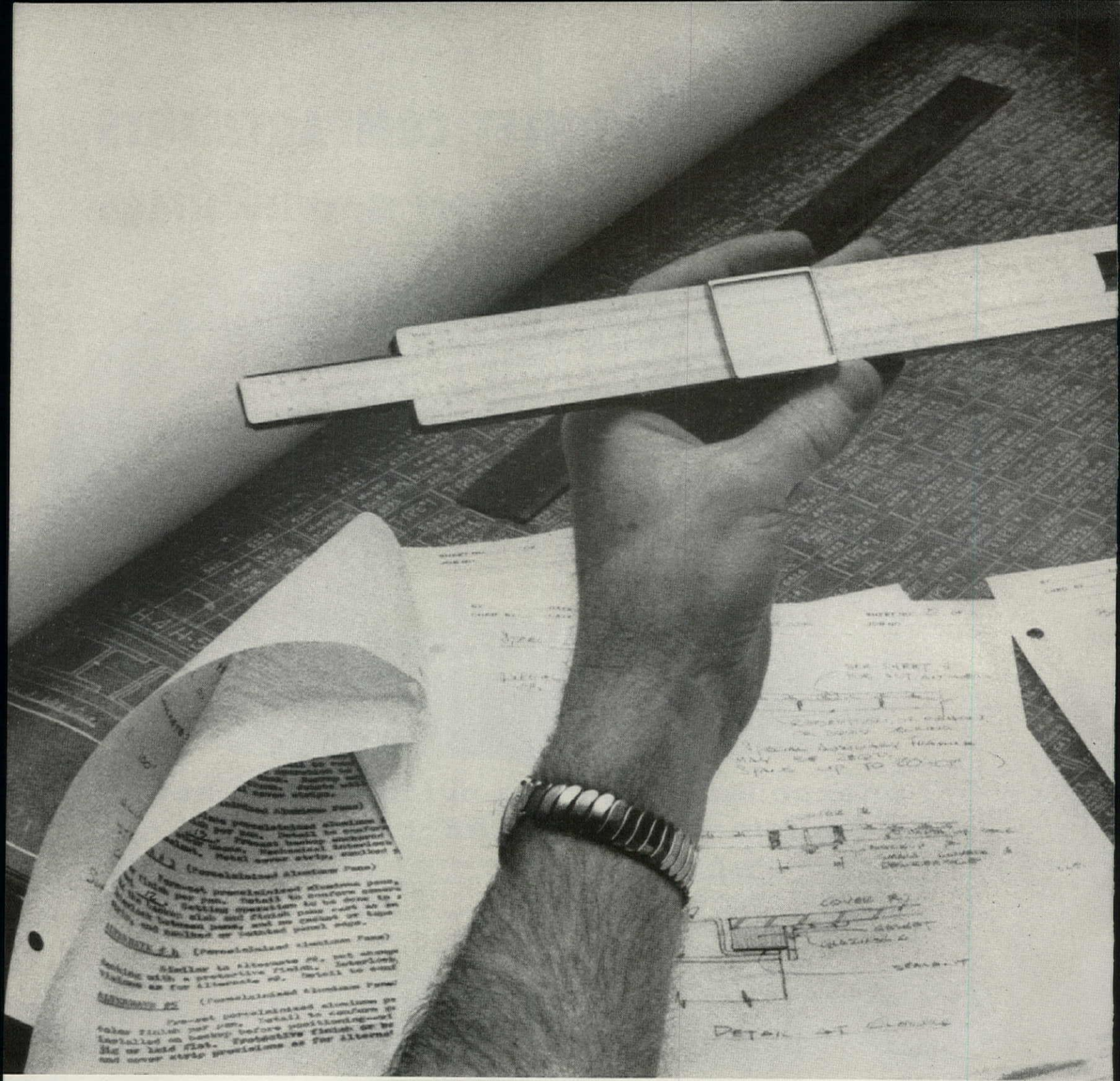
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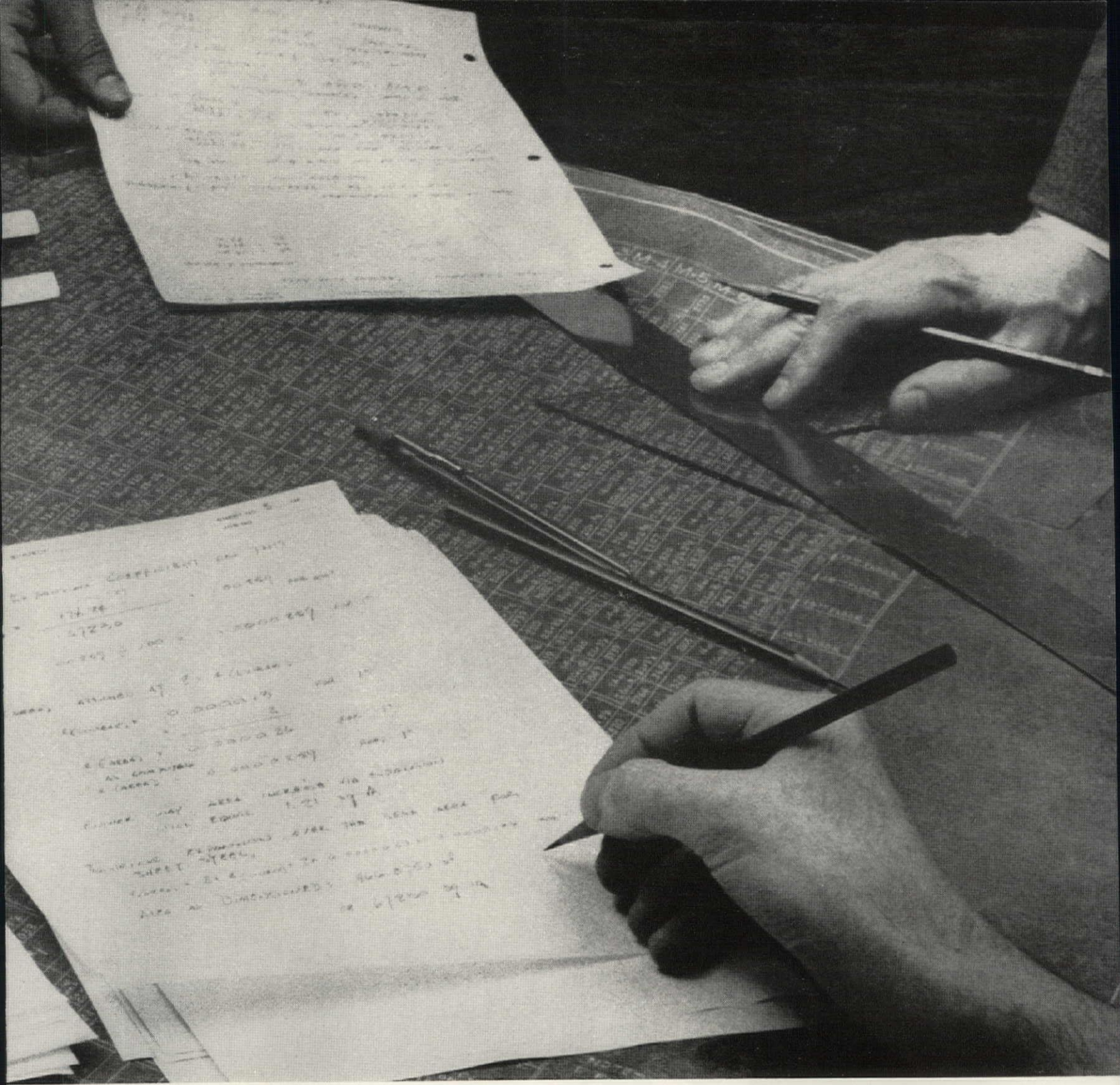
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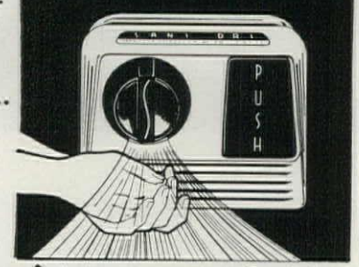
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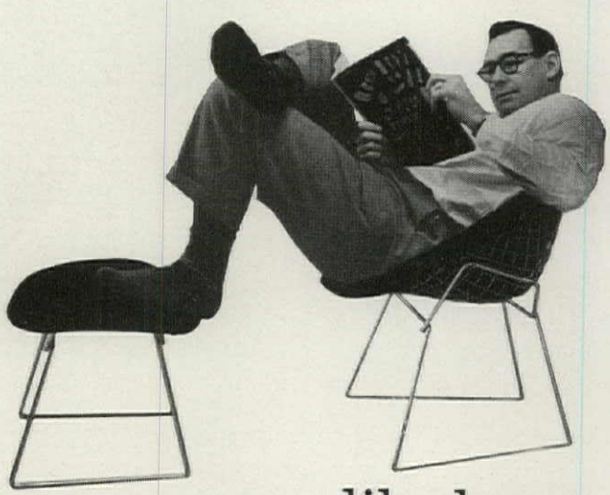


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What other people are saying

ADOLESCENT ARCHITECTURE

The architectural profession has much to learn about the art of handling space, technology, visual perception, and visual delight before it reaches maturity. This was the theme of a recent talk to Yale alumni by Architect Paul Rudolph, chairman of the University's Department of Architecture.

The ever evolving cycle in human affairs is at that point where action has outstripped ideas and theory. And so it is in architecture. The last decade has thrown a glaring light on the omissions, thinness, paucity of ideas, naïveté with regard to symbols, lack of creativeness and expressiveness of architectural theories as they were developed by the 1920's. Modern architecture is still a gangling, awkward, ungracious, often inarticulate, precocious, adolescent thing, which has not yet even begun to reach full flower.

We do not know how to do many things which other great periods of architecture have known.

Foremost is our lack of a coherent theory with regard to how to relate one building to another, and to give meaning to the spaces between. We need desperately to relearn that art of disposing our buildings to create different kinds of space: the quiet, enclosed, isolated, shaded space; the hustling, bustling space, pungent with vitality; the paved, dignified, vast, sumptuous, even awe-inspiring space; the mysterious space; the transition space which defines, separates, and yet joins juxtaposed spaces of contrasting character. We need sequences of space which arouse one's curiosity, give a sense of anticipation, which beckon and impel us to rush forward to find that releasing space which dominates, which acts as a climax and magnet, and gives direction. Most important of all, we need those outer spaces which encourage social contact.

Second, we must search for more eloquent relationships between the conceptual aspects of building and techniques. The range of concepts is limited now to goldfish bowls, buildings on stilts, and the efforts of the structural exhibitionists. The feeling and respect for material and the construction process must become more clear. The question of whether or not the ultimate form for the steel frame has indeed been found must be considered anew. The 35 per cent of our budget which we often spend on mechanical equipment needs reassessment. We should receive more from it than just keeping hot or cold. Structure has caught our imagination, but the mechanical equipment has ruined many a fine scheme, turning our buildings into Swiss cheese. There is perhaps too much concern in architectural circles about peripheral matters and too little understanding of age-old concepts, such as fine proportions, how to get into a building, relationships of volume to volume, how to relate a building to the ground, the sky, and so forth.

Third on our list of forgotten fundamentals is the concern of *visual perception*. An architect should be concerned with how a building looks in the rain, or on a summer day, its profile on a misty day, the different treatment required for that which is close at hand versus that which is 20 stories removed, with angles of vision, symbolism, and content.

Last on our list is a renewed concern with visual delight. This is indeed the architect's prime responsibility, for other specialists can do everything else that he does and, quite often, much better. The public is confused as never before about the exact function of an architect, for we have gone through a long period where the specialists talked only of social responsibility, techniques, economy, and the architect as a coordinator. We have even apologized for being concerned with visual design.

After all the building committees, the conflicting interests, the budget considerations, and the limitations of his fellow man have been taken into consideration, the architect's responsibility has just begun.

CITIES WITHOUT VOICES

Although most Americans live in cities, political representation is heavily weighted in favor of the rural minority. That, according to Senator John F. Kennedy (D, Mass.) in an article in the New York Times *Magazine, is the reason our governments slight city problems.*

A majority of Americans, one hundred million strong, live in the metropolitan areas. They cast the majority of votes, they pay the largest share of taxes. Why do they not exert their power politically to secure their rights and their needs?

The sad answer is that the urban majority is, politically, a minority and the rural minority dominates the polls. Of all the discriminations against the urban areas, the most fundamental and the most blatant is political: the apportionment of representation in our legislatures and (to

continued on page 178

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a lesser extent) in Congress has been either deliberately rigged or shamefully ignored so as to deny the cities and their voters that full and proportionate voice in government to which they are entitled. The failure of our governments to respond to the problems of the cities reflects this basic political discrimination.

Rarely, in electing state legislatures, does an urban vote, in effect, count for as much as a rural vote. At one time, in a then largely rural nation, legislative strength was heavily weighted in favor of rural areas. Though times have changed, many legislatures have not. They have gerrymandered the shape of legislative and congressional districts. They have left district lines unchanged (for as long as 50 years) without adjusting representation to population shifts.

There are states where as little as 10 per cent of the people can elect a majority in one house of the legislature. The citizens of one urban area pay 25 per cent of the state's taxes—but have less than 2 per cent of the legislators who appropriate them. Indeed, in more than half the states, a majority in at least one legislative chamber is elected by less than a third of the voters.

I am not a believer in the omnipotence of federal bureaucracy; I see no magic attaching to tax money which has flowed to Washington and then back again. But as long as our state legislatures are not fully responsive to the urban areas and their needs, there is no practical way in which Congress can avoid its responsibility for meeting problems that are national.

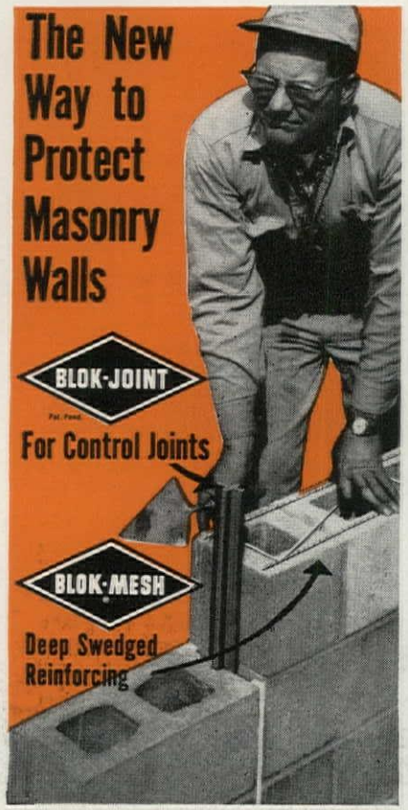
Congress cannot yield vital public functions affecting our metropolitan majority to state legislatures dominated by rural minorities. To do so would consign almost two-thirds of a nation to second-class citizenship. As long as democracy is distorted in this fashion, our cities will inevitably turn from unsympathetic state legislatures and seek help from a more responsive source—the federal government.

The cities of America cannot afford to become wholly dependent upon unsympathetic and unrepresentative state legislatures for assistance in tackling their problems of urban redevelopment and all the rest. Our growing classroom shortage cannot be met by state aid alone.

As our cities grow and their problems mount, the pressures for reform will increase. Perhaps an aroused public, a vigorous press, and the force of the democratic tradition will create an irresistible demand for justice to the second-class citizens of the city and its suburbs.

One hundred million citizens—constituting a majority of the nation—will not forever accept this modern-day "taxation without representation." If there is a "shame of the cities" today, it is the failure of our urban dwellers and their spokesmen to be aware of these discriminations—and to press more vigorously for their elimination.

continued on page 181



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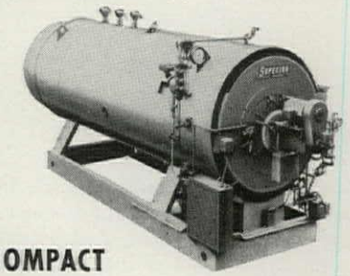
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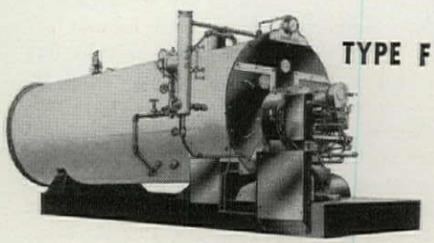
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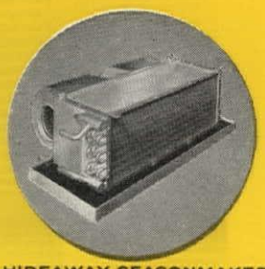


TYPE A

Burns oil, gas, coal or wood. Ideal for installations where space or fuel requirements prohibit use of Type D unit. Capacities to 60,000 lbs. steam/hr. Coal-fired capacity 10,000 to 30,000 lbs. steam/hr.

SUPERIOR PACKAGED BOILERS

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HIDEAWAY SEASONMAKER

McQUAY Means Quality

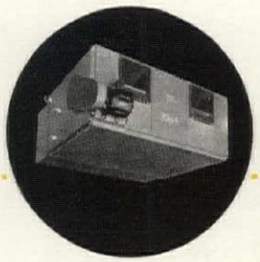
When you think of quality, you automatically think of McQUAY, because McQUAY MEANS QUALITY.

Only McQuay units are equipped with the famous and exclusive Ripple Fin coils which create the maximum air turbulence necessary for efficient heat transfer. Expanding the copper tube against the wide, full fin collars, which act as automatic spacers, provides rigid metal-to-metal contact and completely covers the copper coil to form a "tube within a tube".

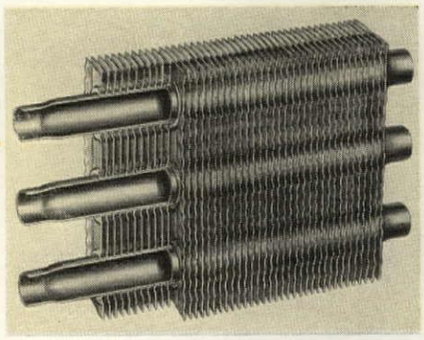
The complete McQuay product line is constructed of the finest heavy gauge materials—combined with the NEW McQuay Galva-Seal process, bonderized and then finished with a special formula enamel baked on—offering you the finest corrosive resistant assembly available. And, the Dura-Frame "V" channel construction, another McQuay exclusive, provides the strength and rigidity necessary to quiet, trouble-free operation.

There is no substitute for quality, no substitute for the experience and the research and engineering for which McQuay is famous.

Compare McQuay in every way—from the appearance and beauty of the finished product to the heart of each unit, the coil itself—and you will readily see why McQUAY MEANS QUALITY—and quality means performance and long life. McQuay, Inc., 1609 Broadway Street N.E., Minneapolis 13, Minnesota.



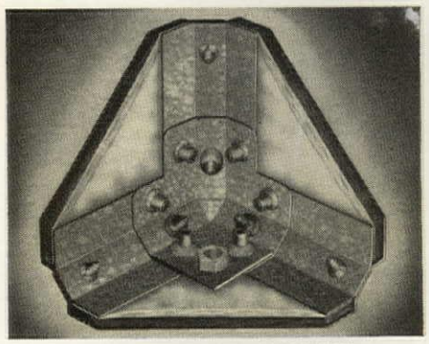
SEASONMASTER AIR CONDITIONER



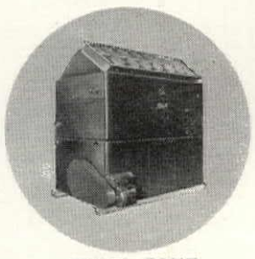
RIPPLE FIN COIL CONSTRUCTION



INDIVIDUAL ROOM SEASONMAKER



DURA-FRAME "V" CHANNEL CONSTRUCTION

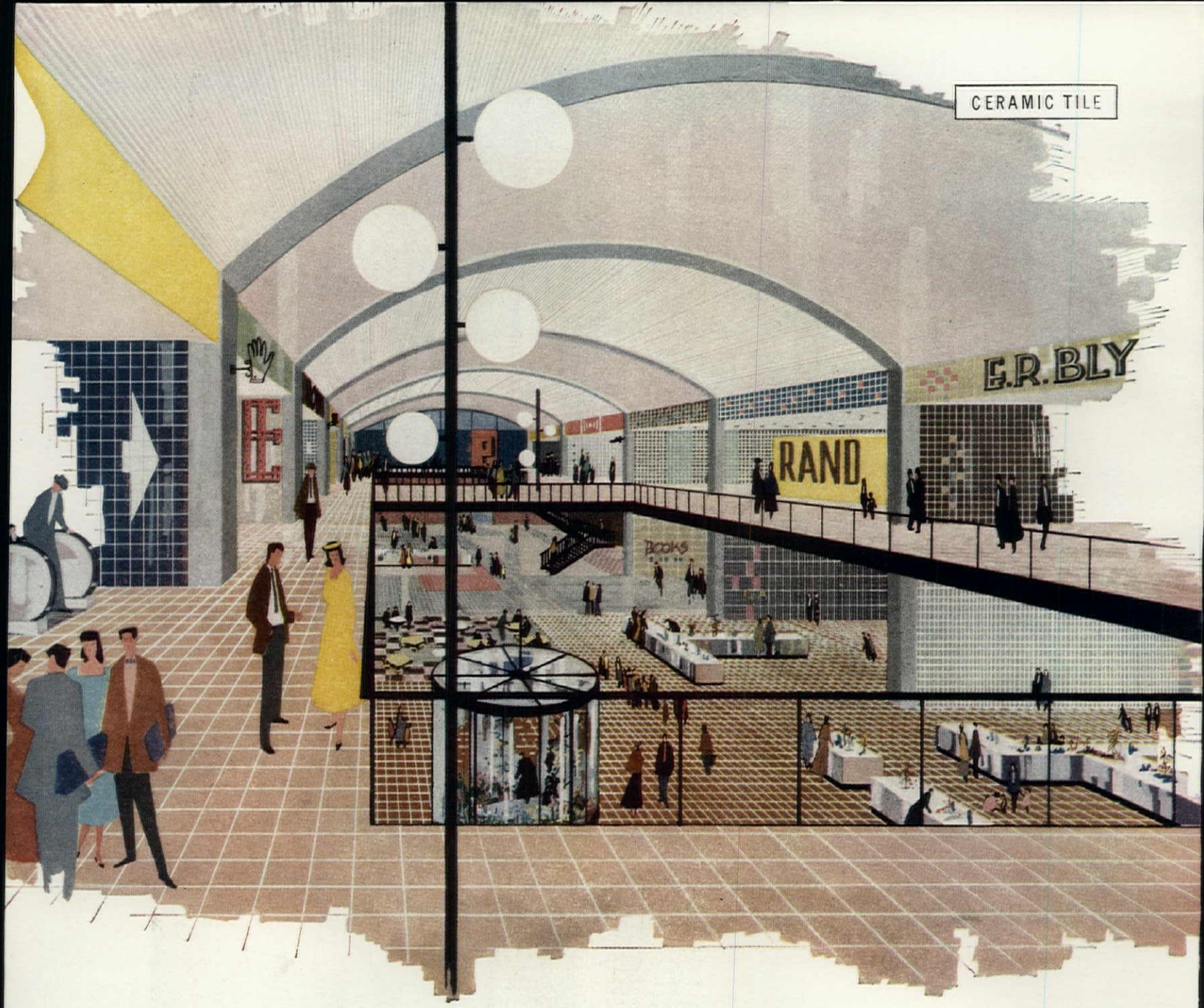


MULTI-ZONE AIR CONDITIONING UNIT

McQuay Means Quality







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HELLMUTH, OBATA & KASSABAUM *Gyo Obata*

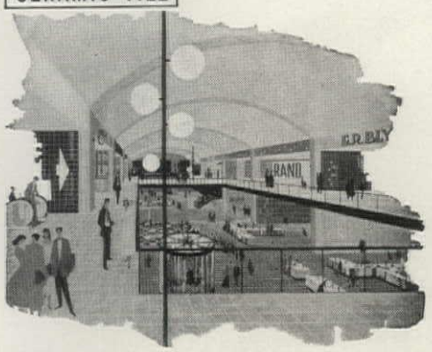
This shopping center captures the flavor of an Old World bazaar with the attendant gaiety which heightens the buying instinct . . . yet the functional, two-story design fits the modern shopping center concept perfectly.

The architects helped themselves liberally from ceramic tile's riotous palette . . . created with tile color and texture the "visual excitement" so necessary for a consumer buying climate. Function, too, is served by the device of having different tile colors serve as a visual separation of store units.

Add to this other ceramic tile benefits: unmatched durability of floors for shopper-traffic, no waxing needed, cleaning costs held to a minimum, fireproof surfaces. Ceramic tile subtracts from overhead costs—adds to the profit side of your client's ledger!

The Modern Style is

CERAMIC TILE



Design for a Shopping Bazaar
by Hellmuth, Obata & Kassabaum

The multiple benefits of ceramic tile will pay off handsomely for yourself and your client on any residential, institutional or commercial project you undertake. See your local tile contractor for up-to-date information—including all the details on the new lower-cost installation methods and the new dry-curing, thin-setting bed mortars.

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CERAMIC tile

BUSINESSMEN'S REDEVELOPMENT

In a recent address to the annual meeting of the Committee for Economic Development Banker Arthur Van Buskirk of Thomas Mellon & Sons emphasized the opportunities for businessmen to derive personal gratification from urban renewal.

I will not review the story of Pittsburgh's renaissance, but rather discuss the significance of this municipal redevelopment from the standpoint of the business leaders of America.

Some say, "Ours is a strong democracy." I wonder! How can our democracy be strong when we see the central business districts of our cities deteriorating and bordered by slums and blighted residential areas? These slums are the cancers on the body politic of our communities. The more enterprising residents leave as they can afford to do so, and the shiftless and indigent move in, bringing further deterioration. Here are the breeding places for communism and the forces of crime and corruption. Here is a task too big for municipal government to do alone, but a job which local government and the business leadership of the community together can do much to solve if they are fired with imagination, courage, and unselfish public spirit. This is the lesson of Pittsburgh's renaissance.

Remember that cities and nations and civilizations have come and gone in the course of the world's history. Remember that democracy flourished in Greece and Rome for a brief century or two and then disappeared. Remember that following upon her Golden Age 2,300 years ago, Greek freedom was lost by men struggling for riches, class hatred, desire to escape military service, political disorder, moral corruption, and a waning patriotism.

What could be more fitting than that our leaders of business and industry and the professions should spend more of their time as they approach the sundown of life in the building of finer democracy in their home communities. The world needs the wisdom and experience of such men. Benjamin Franklin spent the first 42 years of his life in making money in order that he might spend the last years of his life in public service. And as the shadows fall, relative values clarify. Power and money and titles no longer sway the judgment. Fortunate is the man who learns in younger years, with Thomas Jefferson, that there may be loftier goals than high office. When Jefferson came to write his epitaph, he never mentioned having been President of the United States. He wished to be remembered as the founder of the University of Virginia and author of the Declaration of Independence. However high may be the title that any of us holds in the business world and however many may be your corporate directorships, I trust the day will come that you may, like Jefferson, take greater pride in your record of public service. END

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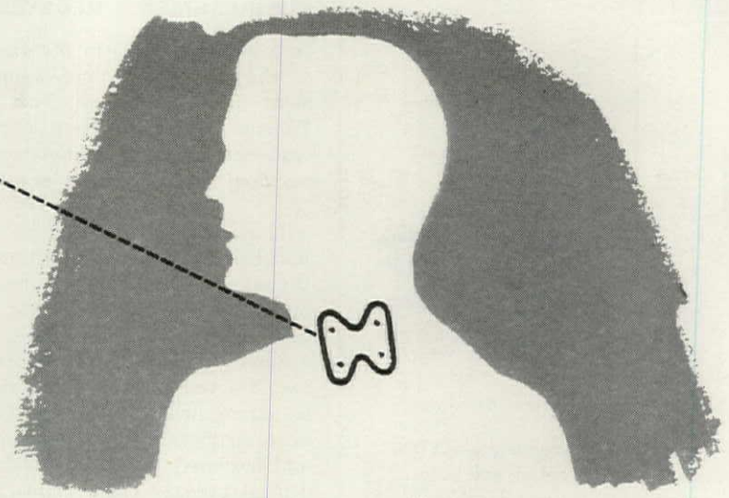
See Sweets 17 a/FEN

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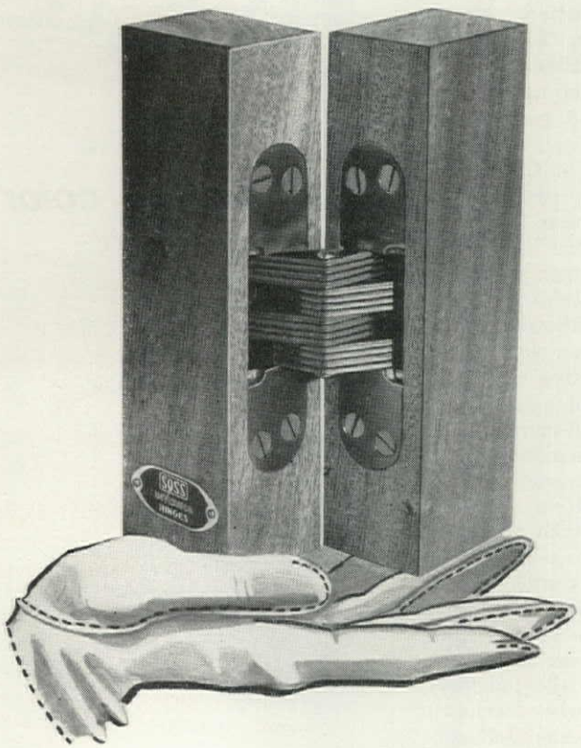
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THE THYROID GLAND

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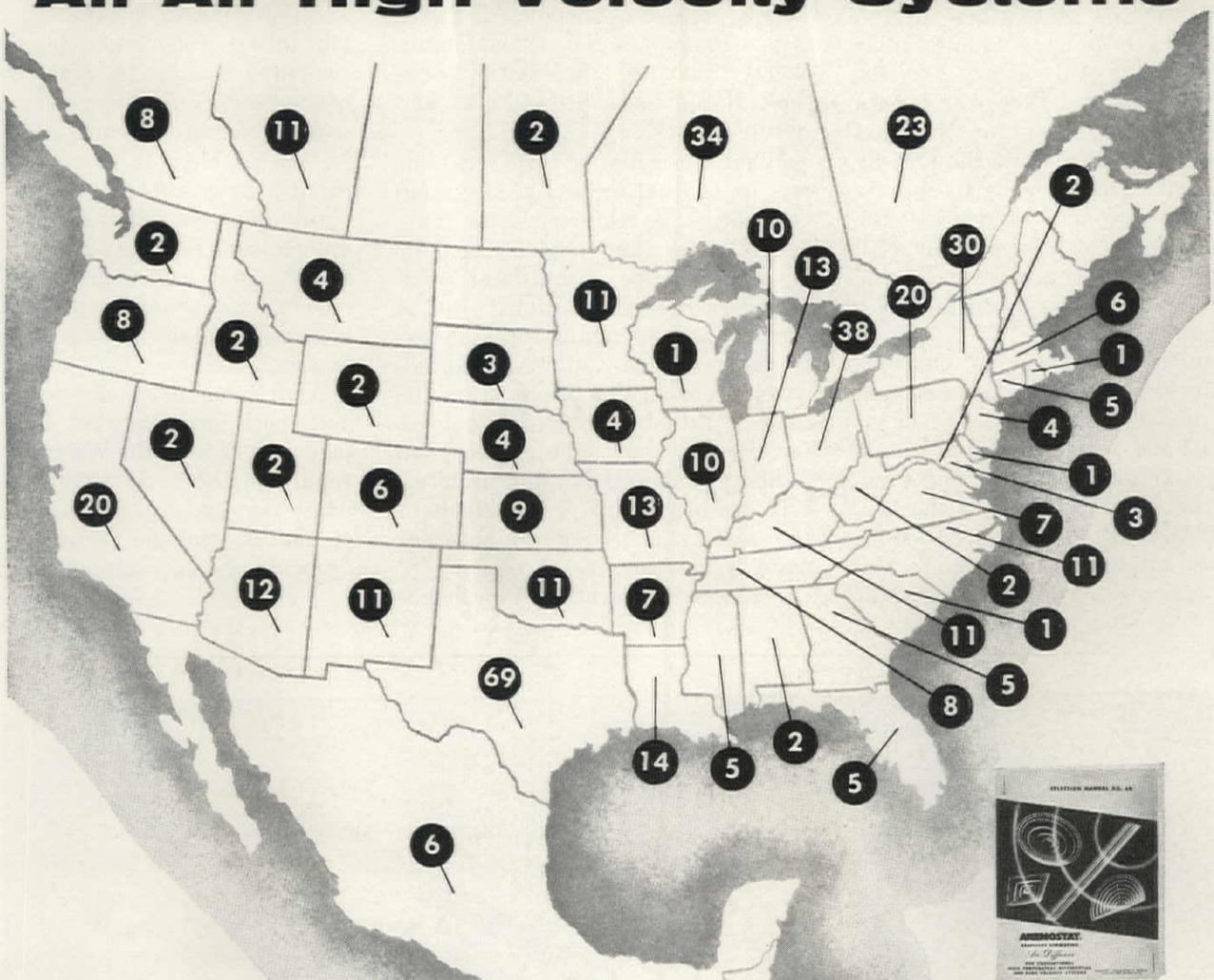
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REPRESENTATIVES IN PRINCIPAL CITIES

this will mean the growth of new centers at highway junctions and access points. Such are the new transport situations created by the seaway that make regional construction booms almost inevitable.

Nevertheless, the names of some of the seaports of this new Eighth Sea are likely to have an unfamiliar ring to most Americans. And the prospects are that they will remain relatively unfamiliar for the next decade or so. For while the seaway will allow larger vessels to operate and traffic volume will rise, the larger vessels, at least initially, will be inclined to concentrate on the larger, more efficient ports for a quick turn-around.

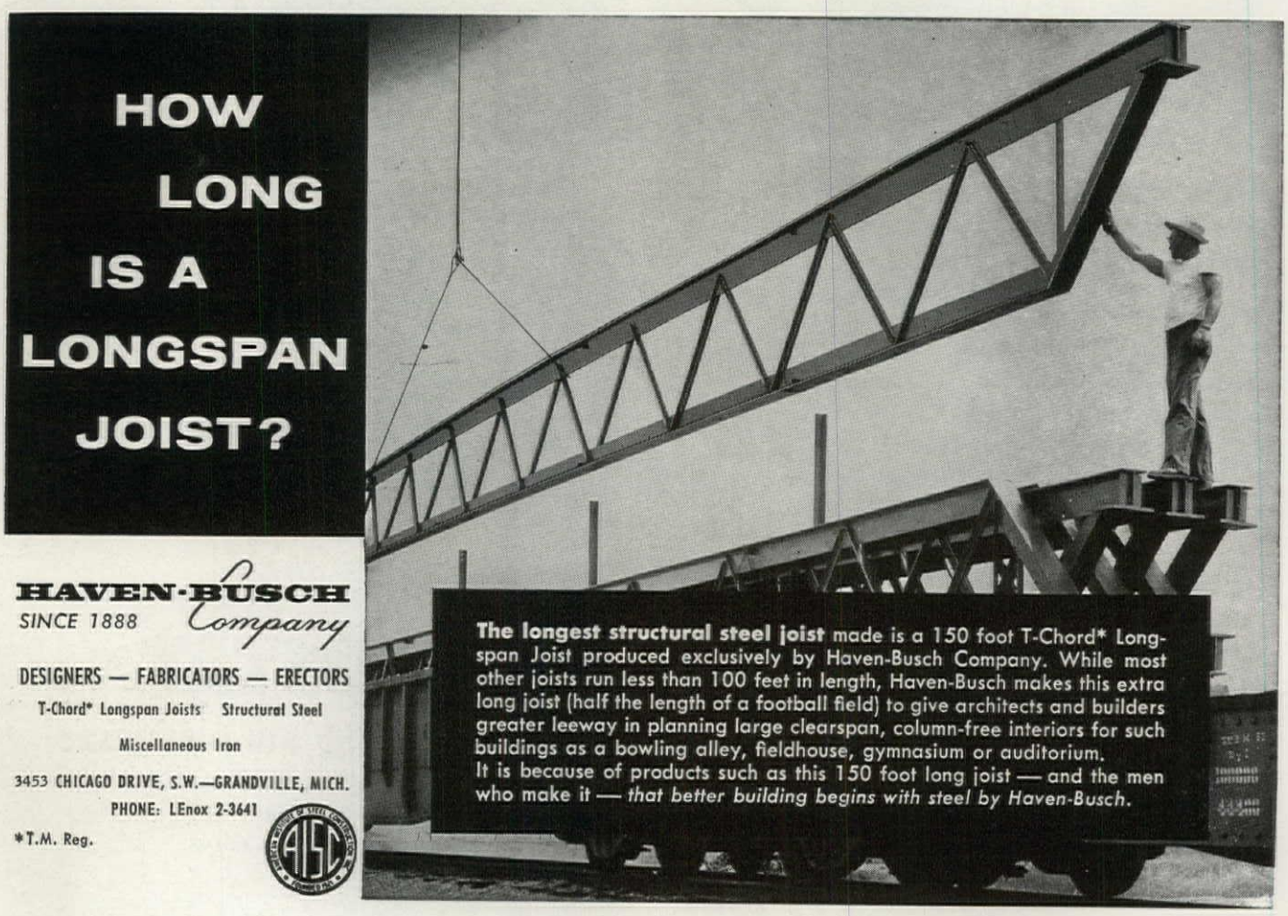
Without much question, Chicago, with its great rail hub, its connection with inland waterways, its great industrial and agricultural hinterland, its vast urban population, and superior port facilities, will be the biggest beneficiary of the seaway. More or less bright hopes animate the other larger ports of Cleveland, Milwaukee, Detroit, Toledo, Toronto, and Buffalo. But dozens of smaller, less familiar ports are also likely to feel a touch of the wand eventually: Hamilton, Rochester, Erie, Muskegon, Gary, Duluth-Superior, Manitowoc, Ashtabula, Oswego, Sandusky, Massena, Sheboygan, Silver Bay, Parry Sound, Penetanguishene, Taconite, Manistee, Charlevoix, Heron Lake, Sodus Point, and Seven Islands.

What the eventual repercussions will be in local industrial, city, and residential developments is anybody's guess, and anybody usually means the city drumbeater with fairly extravagant visions. But it must be stated again that the extravagance, if any, applies to anticipating too early a boom from the seaway, rather than to anticipations for the long run. The construction industry, engineering, and architecture are bound to feel the effects of the seaway in rising measure for many years to come.

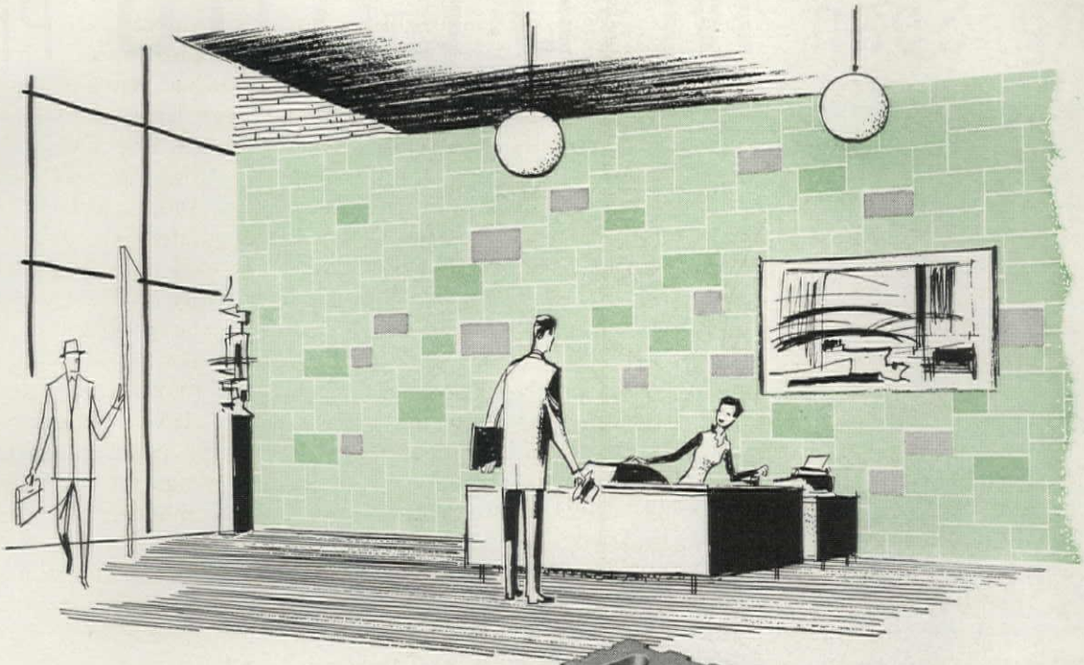
Some rather formidable problems still confront the seaway, indicating no quick ride into the millennium. The most acrimonious problem is the question of toll rates, which has sparked years of wrangling between East Coast and Gulf Coast interests, on the one hand (for high tolls), and the Midwest, on the other (for low tolls). Tolls must, by law, be regulated so as to amortize the bonded debt and other costs of the seaway within 50 years. Accordingly, the problem is to set rates as cannily as possible so as to bring optimum income—low enough to invite traffic, high enough to bring fairly rapid accumulation. Formal hearings on proposed rates started last month, and fireworks can be expected.

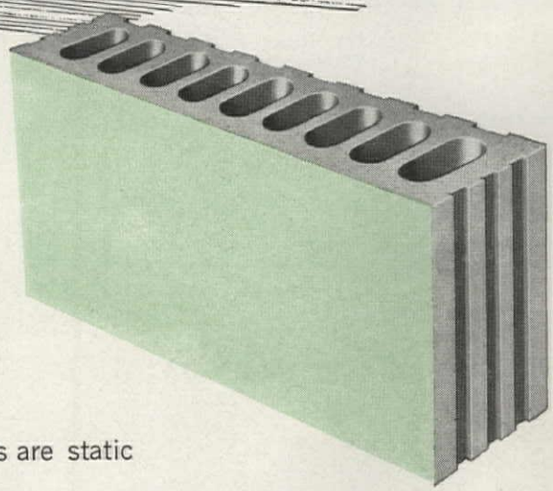
A problem more physical is the bottleneck posed between Lakes Ontario and Erie by the Welland Canal, rebuilt in the early 1930's by Canada—happily to present seaway standards, though requiring some deepening — but already slowing

continued on page 188



STARK IDEA FILE





New idea

...feature wall of beautiful, low-cost structural glazed facing tile in Random Ashlar pattern.

Too often, walls of uniformly sized materials are static or uninteresting.

Shown here is a beautiful, interesting, wall of Stark Structural Glazed Facing Tile. Standard tile sizes are used and less than 1/3 of the units require cutting. Adding occasional tiles of contrasting colors contributes to the overall attractiveness.

Next time a job calls for beauty . . . easy maintenance . . . economy and durability . . . specify Stark.

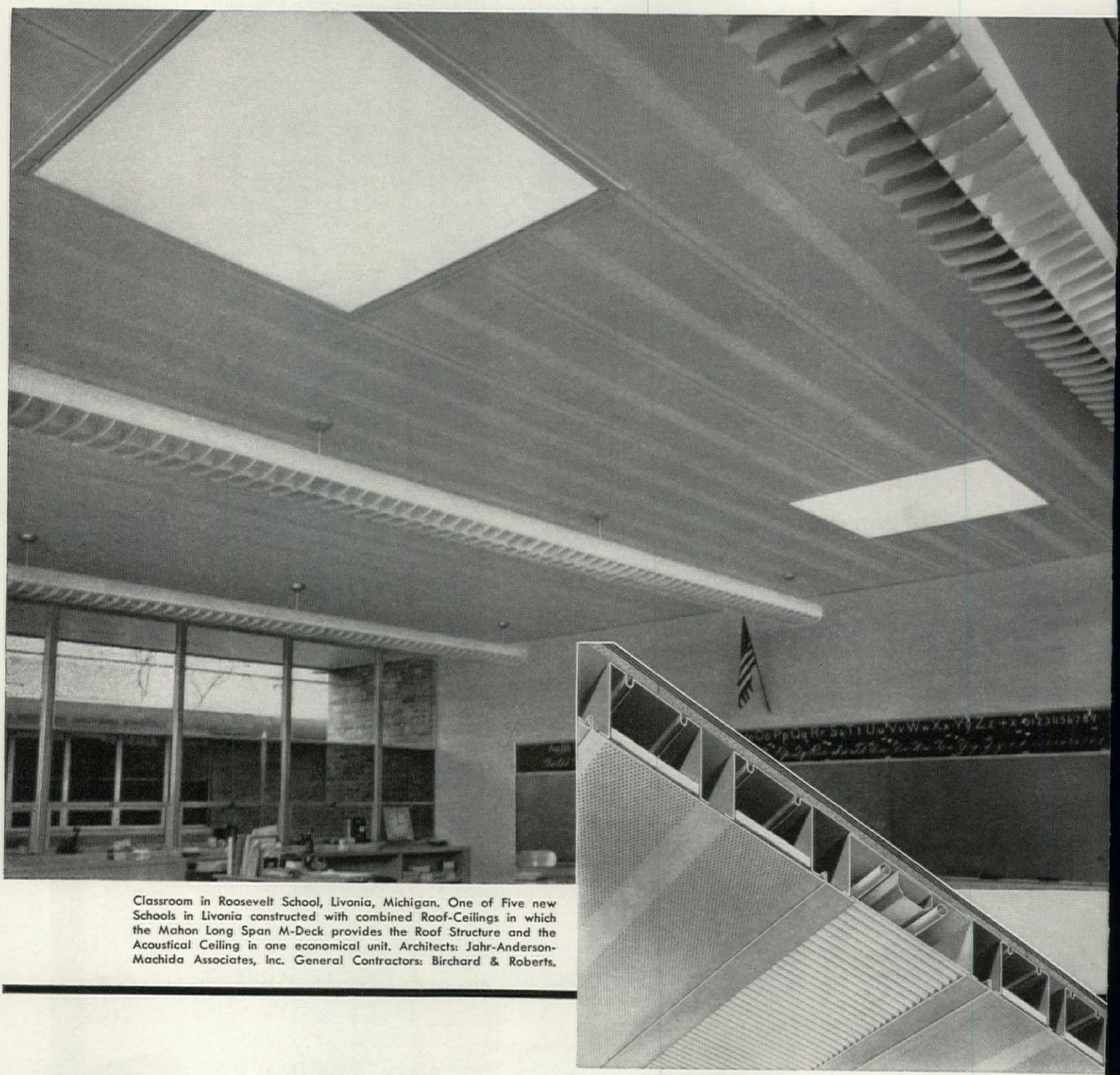
IF YOU WOULD LIKE A DETAILED PRINT, INCLUDING TILE COUNT AND SIZES, OF THE WALL SHOWN ABOVE, SIMPLY REQUEST ON YOUR LETTERHEAD.

STARK CERAMICS, INC.
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A new, complete and detailed catalog is now available . . . Simply request on your letterhead.



Long Span M-DECKS Provide



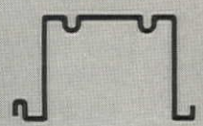
Classroom in Roosevelt School, Livonia, Michigan. One of Five new Schools in Livonia constructed with combined Roof-Ceilings in which the Mahon Long Span M-Deck provides the Roof Structure and the Acoustical Ceiling in one economical unit. Architects: Jahr-Anderson-Machida Associates, Inc. General Contractors: Birchard & Roberts.

Serving the Construction Industry Through Fabrication of Structural Steel, Steel Plate Components, and Building Products

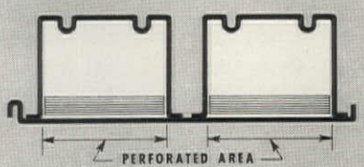
the Structural Roof, Finished Ceiling Material and Acoustical Treatment!

Cel-Beam Sections Span from Wall to Wall or Truss to Truss . . . Eliminate Purlins

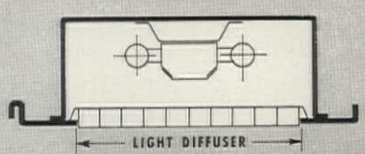
MAHON
Long Span
M-DECK SECTIONS



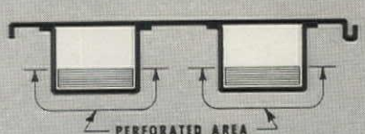
SECTION M1-OB
OPEN BEAM DEPTH 3", 4½", 6" or 7½"



SECTION M2SR (Acoustical)
CEL-BEAM DEPTH 3", 4½", 6" or 7½"



SECTION M1T (Troffer)
DEPTH 6" or 7½"



SECTION M2 (Acoustical)
CEL-BEAM DEPTH 1½", 3", 4½", 6 or 7½"

At Left: Cross Section of Long Span M-Deck Combined Roof-Ceiling with Troffer Lighting.

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passage time to nearly double the average 1935 rate of 7 hours, 44 minutes, due to the clogging of heavier traffic. No one thinks the present canal can handle much more than 50 million tons a year. The pinch may not become too great for some time, for the seaway will handle ships of 10,000-ton cargo as against the present lake-going ships of 1,600 tons, and it is the number of vessel transits, not tonnage volume, that is crucial in the Welland bottleneck. There is talk of doubling the canal's locks and channels, and something like this is probably inevitable, but not before a decade or so.

Another problem that has received scant publicity but may be the most formidable of all is labor. Last spring foreign shipping was tied up on the lakes by the striking International Organization of Masters, Mates and Pilots, the issue being whether pilots are needed throughout the seaway and lakes, as the pilots' union contends, or only in the difficult channels. The biggest labor test will come in 1960, when present longshoremen contracts run out. What is happening is that the International Longshoremen's Association and International Brotherhood of Teamsters (James Hoffa, president) are allied in seeking to extend ocean port wage scales and pier procedures to the lower-cost lake ports. Any substantial rise in costs could exert a most inhibiting influence on seaway traffic.

The most inhibiting problem for seaway traffic now is the fact that the waterway is closed by ice for a third of the year. But here technological developments may come to the rescue. In Sweden and elsewhere it has been demonstrated that a system of perforated plastic pipes bubbling compressed air can force warmer water at the lower depths upwards to melt ice on the surface from one to two feet thick. An installation on a Swedish ferry route worked so well that a system is now being installed on a 60-mile channel to the Baltic Sea. This kind of attack, plus conventional icebreakers and other means, may well provide a year-round seaway in a decade or so.

It is wrong to think of the seaway as a static project, with a beginning and an ending. It will be constantly under development, redevelopment, and expansion. Already the Canadians are determined to duplicate the seaway facilties in an all-Canadian waterway. And New York is agitating for a new, deeper waterway from Albany to Canada, connecting with the seaway by way of the Lake Champlain division of the 40-year-old Barge Canal, now open to 12-foot navigation. Similarly, the Illinois Waterway will be rejuvenated at the other end of the system. Indeed, the eventual repercussions of the construction of the St. Lawrence Seaway will rival the impact not only of the Erie Canal but of the Panama and Suez Canals as well.

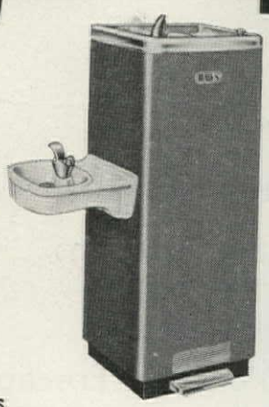
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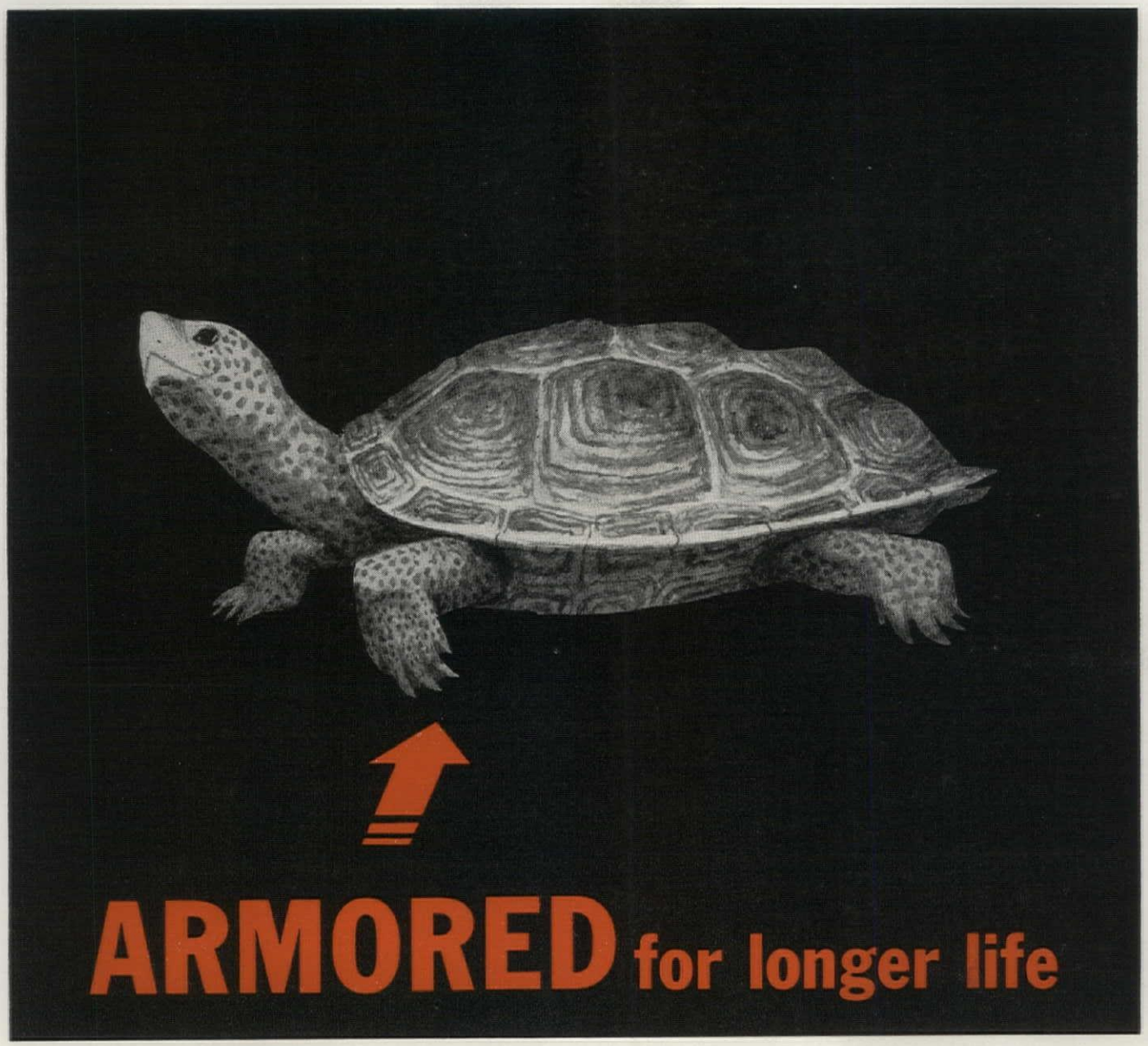
WALL HUNG CONVENIENCE is embodied in Model 61*, in gleaming vitreous china. Simple lines denote the latest in interior styling.

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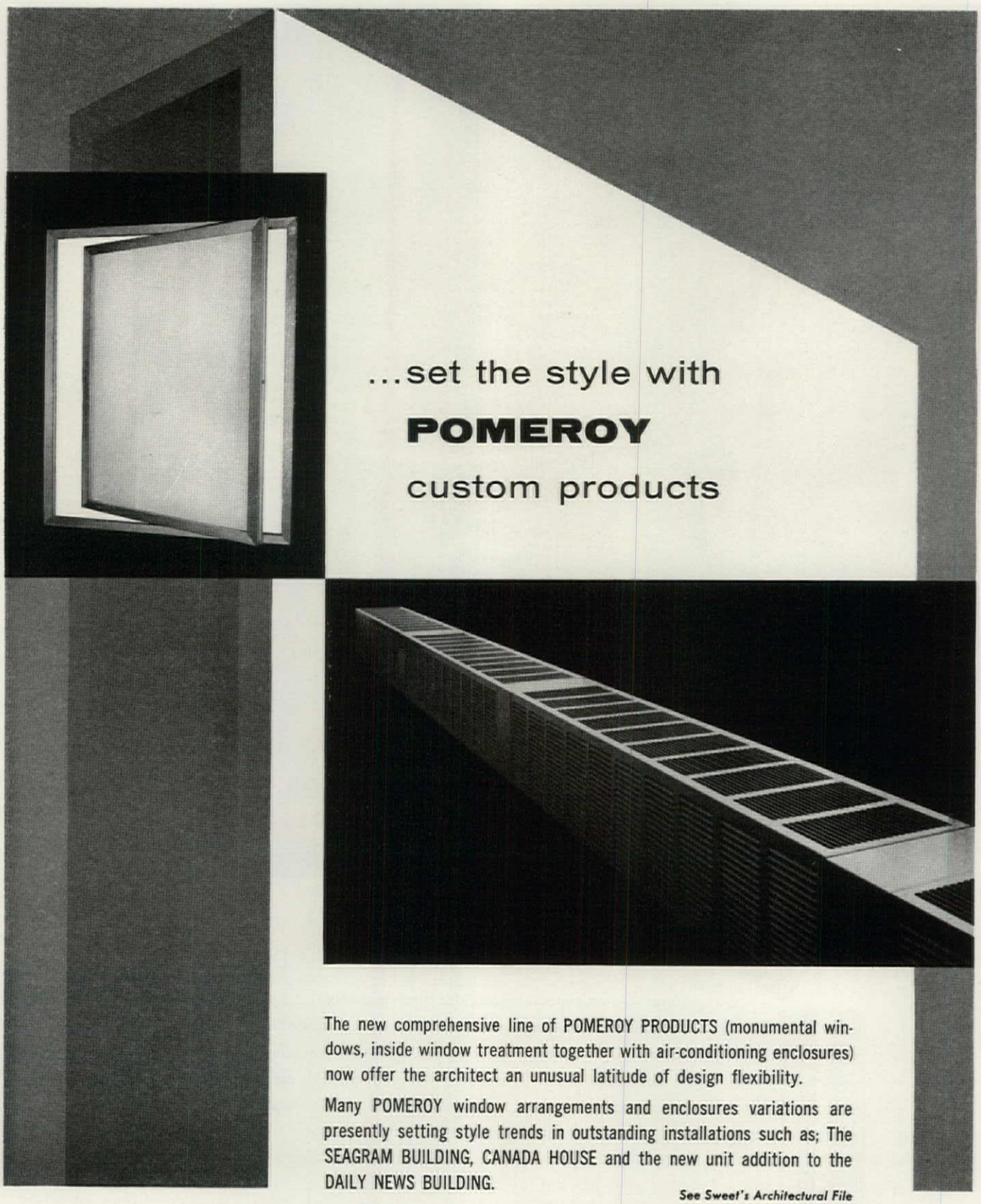
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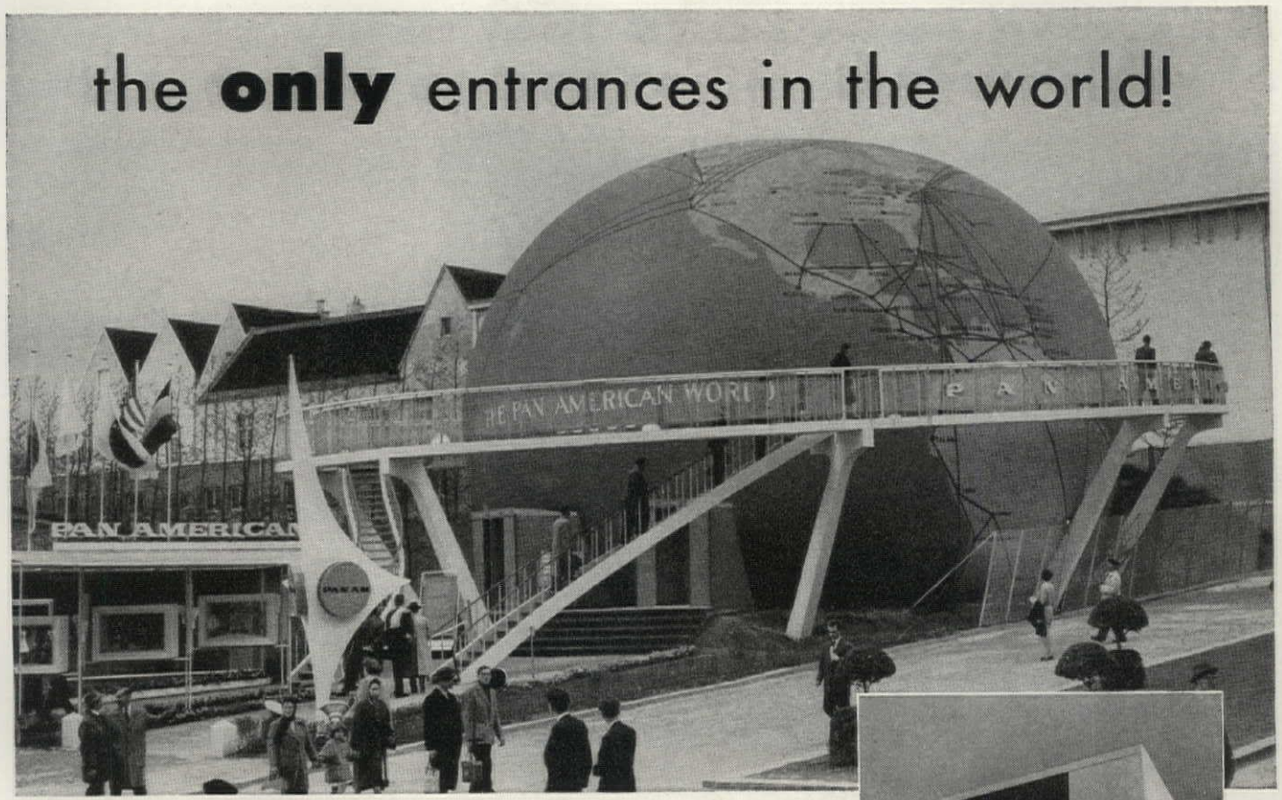
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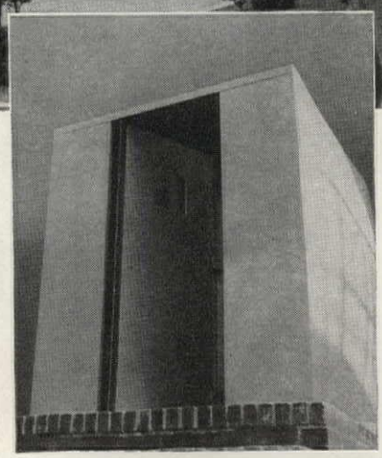
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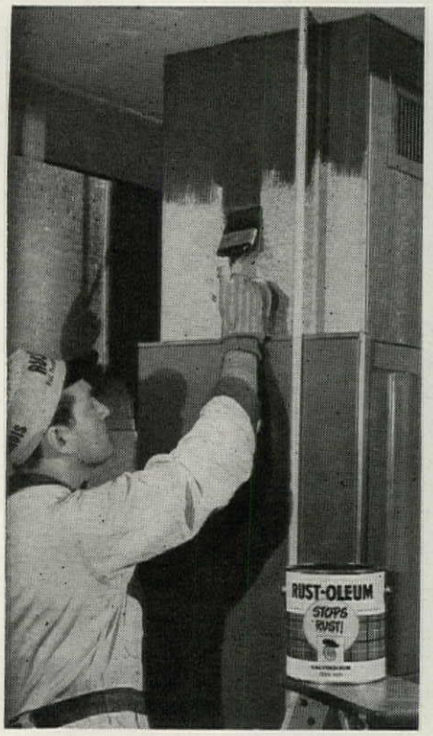
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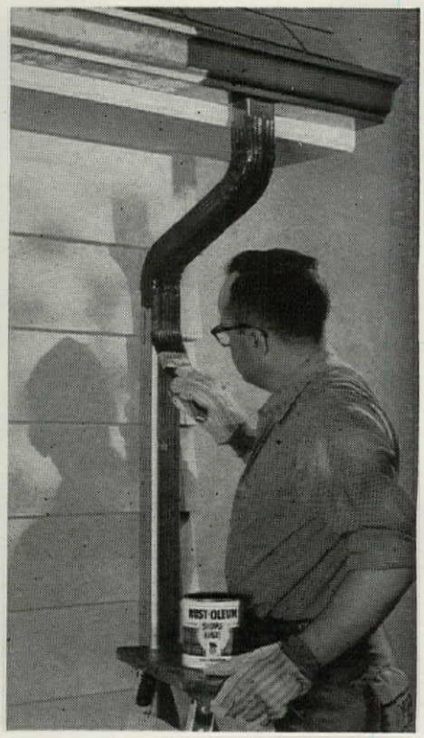


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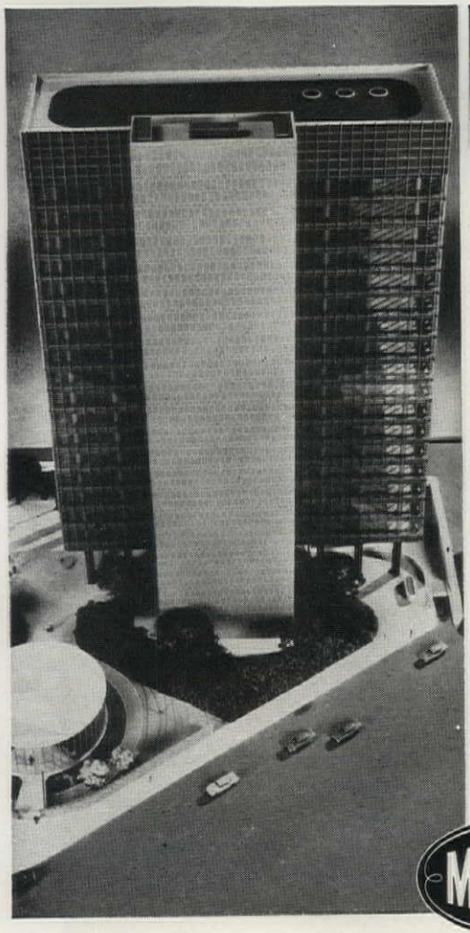


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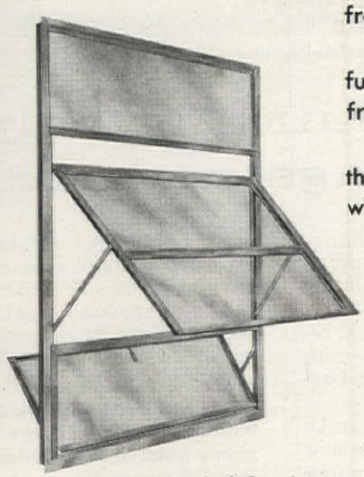
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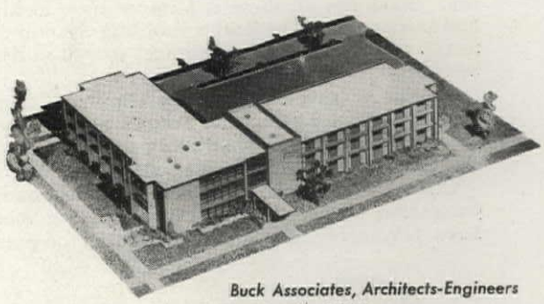
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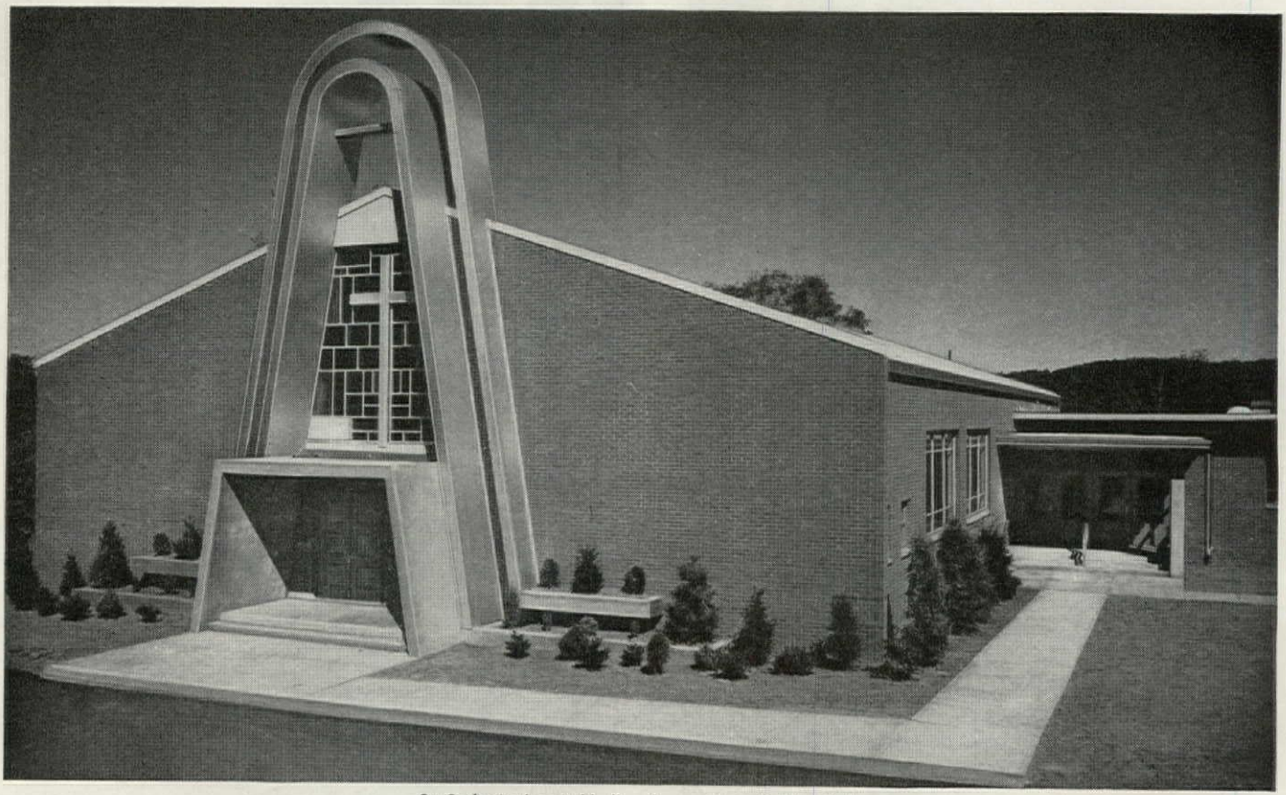
Men's Dormitory
Baker University
Baldwin, Kansas



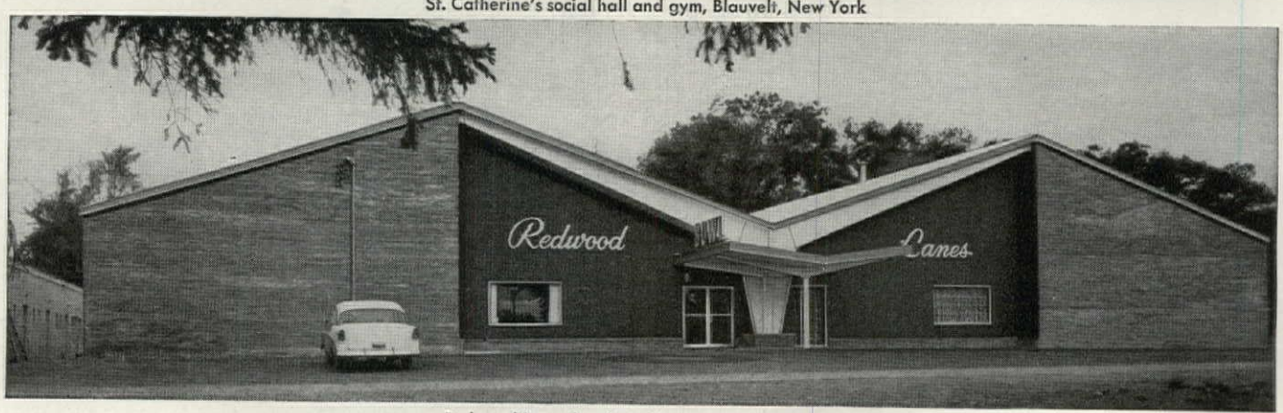
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Consoweld 10 Platinum Walnut pattern is the wainscoting shown here around the trophy room and office of Stevenson High School, Stevenson, Washington.
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Installed by: Artcraft Linoleum & Shade Co., Portland, Oregon.
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At Stevenson (Wash.) High School, the architects used about 7600 square feet of Consoweld 10, the extra-thick (1/10-inch) laminated plastic panels. This was installed directly over gypsum lath, with Consoweld's Twin-Trim matching mouldings at seams. A two-man team installed about 700 square feet per day. Men who installed the panels said that even though this was their first experience with it, they had no trouble whatever installing Consoweld—in fact, said "it was fun to install," and it required no bracing or shoring.

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 continued from page 125

more efficient building—and, most importantly, to more *flexible* building. Those who insist upon using the module as a new kind of strait-jacket do not, in Wright's view, understand the full potentialities of industrialized building.

The City and the Prairie

After Frank Lloyd Wright delivered a series of lectures in London in May 1939, the sculptor Naum Gabo had this to say: "Wright told us: 'Why have cities? Why have towns? What fools they are! Why are they not out in the beautiful landscape, building houses there, and everyone shall have an acre?' Why not? Because what Wright proposes is cake. We want bread. He promises us paradise, not happiness. . . . His ideas are inorganic; they are conservative, escapist. . . . It is not a solution to leave the town and go to the country. He forgets that just across the river is Peckham Rye." (For "Peckham Rye" read "Levittown.")

These were harsh words. Yet, in a way, Wright seems to have expected them. In the 1930's, when he proposed Broadacre City (with one-acre lots for all) as a possible solution for urban living, he was still trying to do to the city what he had done to the house: melt it out into the prairie. But there were certain new facts which Wright had to face sooner or later: the fact that the population of the United States had more than tripled since he was a young man; the fact that the urban population of the country had grown sevenfold since the 1880's; and the fact that suburbs were changing from being thin urban fringes in the 1880's to becoming the massive, impenetrable belts of the 1950's—belts several miles thick, dense enough to strangle almost every American city and to divorce it from its surrounding countryside.

At this moment Wright did a characteristic thing: he made a wildly radical proposal which had no chance whatever of realization but did succeed in dramatizing what all the city planners in the country had failed effectively to dramatize before him. That proposal was to build a one-mile-high skyscraper in Chicago—the "Illinois" project—which would house 130,000 daytime inhabitants, liberate a great deal of space around its base, and go in the one remaining direction in which buldings could still expand without colliding with their neighbors: i.e. up. The country-boy had become the biggest city-slicker of them all—and overnight!

For Wright the technique of dramatization was an old one. Like George Bernard Shaw and others, he understood the publicity value of the dramatic: by dramatizing a problem, you can get people to take a careful look at it (perhaps for the first time in their lives)—and then to listen, just as carefully, to some of the serious things you have to propose. When the dust had settled after Wright's Mile-High proposal, people

began to recognize its fantastic implications. For just to get Mile-High's 130,000 inhabitants in and out of the building every day, it would have been necessary to flatten the entire Loop area and turn it into a park laced with traffic arteries. In other words, Wright had dropped a sort of H-bomb on the city! That, of course, was precisely what he had had in mind.

Since Frank Lloyd Wright appears to be immortal, the chances are that he will develop the vertical theme still farther. If and when he does, his proposals, however sketchy, may turn out to be as important as his work in the areas of space and structure.

Democracy and the Individual

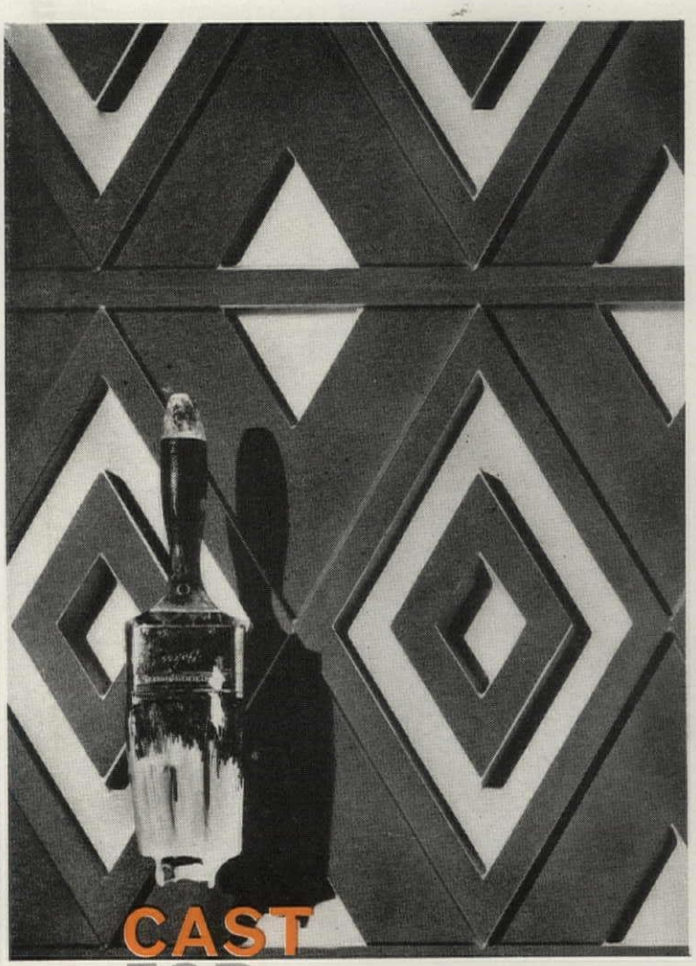
D. H. Lawrence once suggested that it was a function of the artist to stand outside society and to take potshots at it. Wright might add that it is the function of an American to be a revolutionary.

Today, with Wright accepted on almost every level of American society, it is hard to think of him in those terms. Yet his position as an American artist in almost permanent exile from the rest of society is the one that will be remembered in the history books. There was a time when there were many like Wright; even quite recently, in the days of Dreiser, Lewis, Mencken there were plenty of uncommon men in America—uncommon men in whom the true spirit of the American Revolution was a shining reality. But that was before the organization men, before consumer research, before grey flannel suits and before "groupthink."

Wright's contributions to architecture will have a tremendous impact for decades and, possibly, for centuries to come. This much is certain. But Wright's contributions to the ideal of America as a permanent revolution may prove even more important. For by living the life of a radical in integrity and nobility, he has re-asserted the ideal of our society at the right time and in the right way.

And he has done something more: he has set a precedent which may be invoked in the years to come by those who believe that architecture can advance only through individual creative action—and not through togetherness. There has always been a need for efficient, competent plan-factories that can be depended upon to produce a good job on time. There is, today, a tremendous need for cooperation among specialists of many persuasions to solve the problems of architecture.

All this Wright will acknowledge. But architecture has a long way to go to reach its new objectives. And the great forward steps in the coming ascent will be made by individuals rather than committees—by radicals rather than play-safers. By devoting his life to the defense of the radical in American life, Wright has helped assure a hearing for others willing to follow that lonely course in generations to come. END



CAST
FOR
COLOR

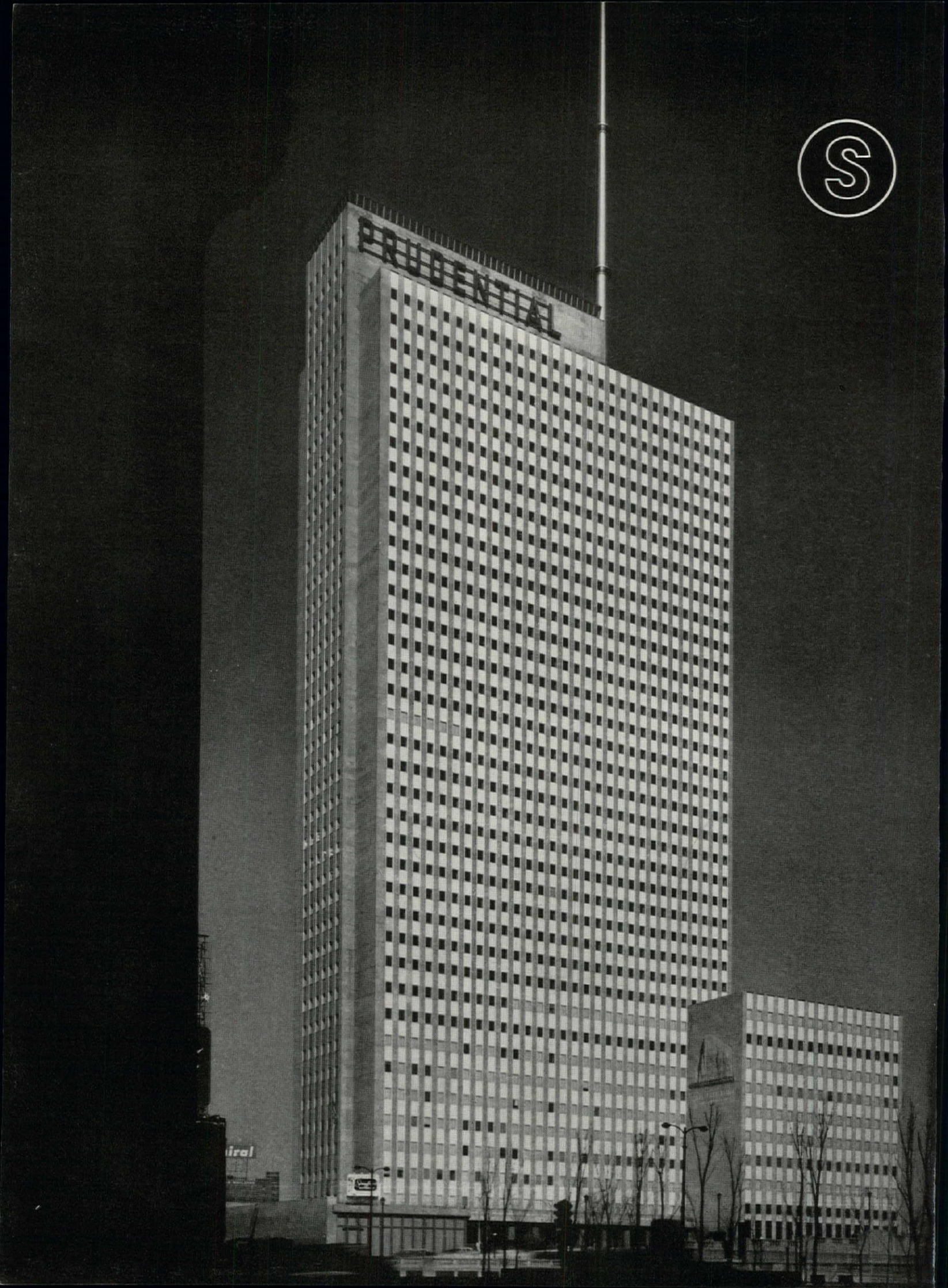
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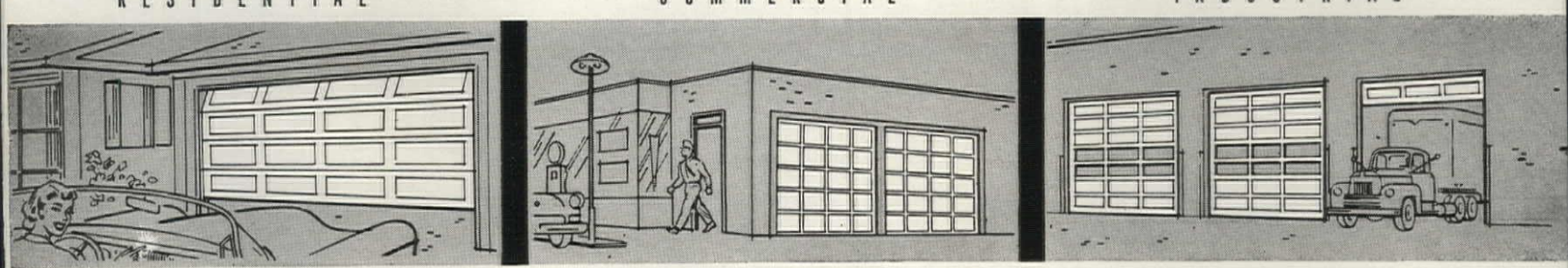
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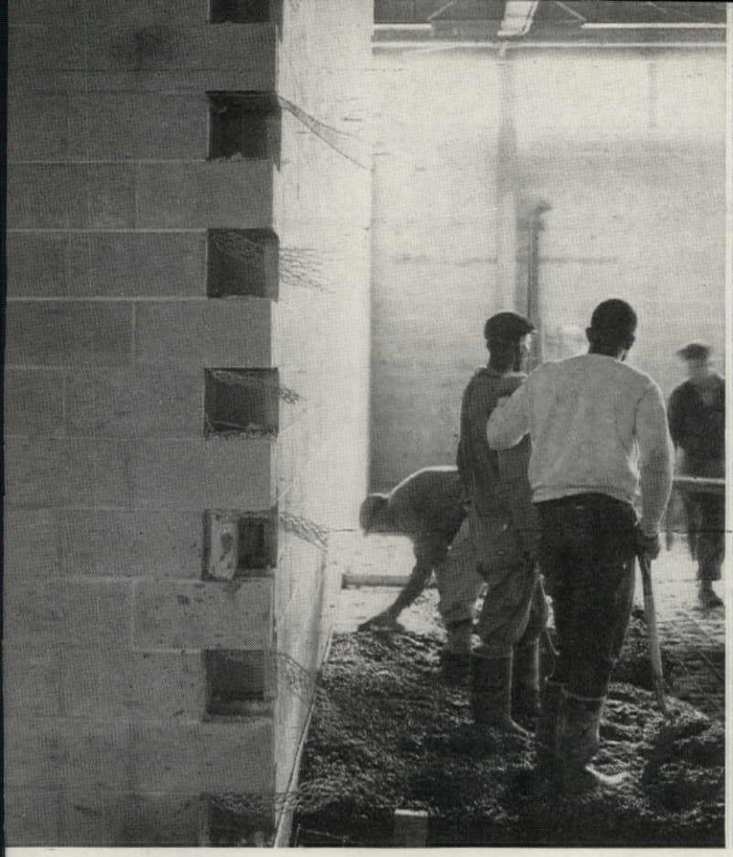
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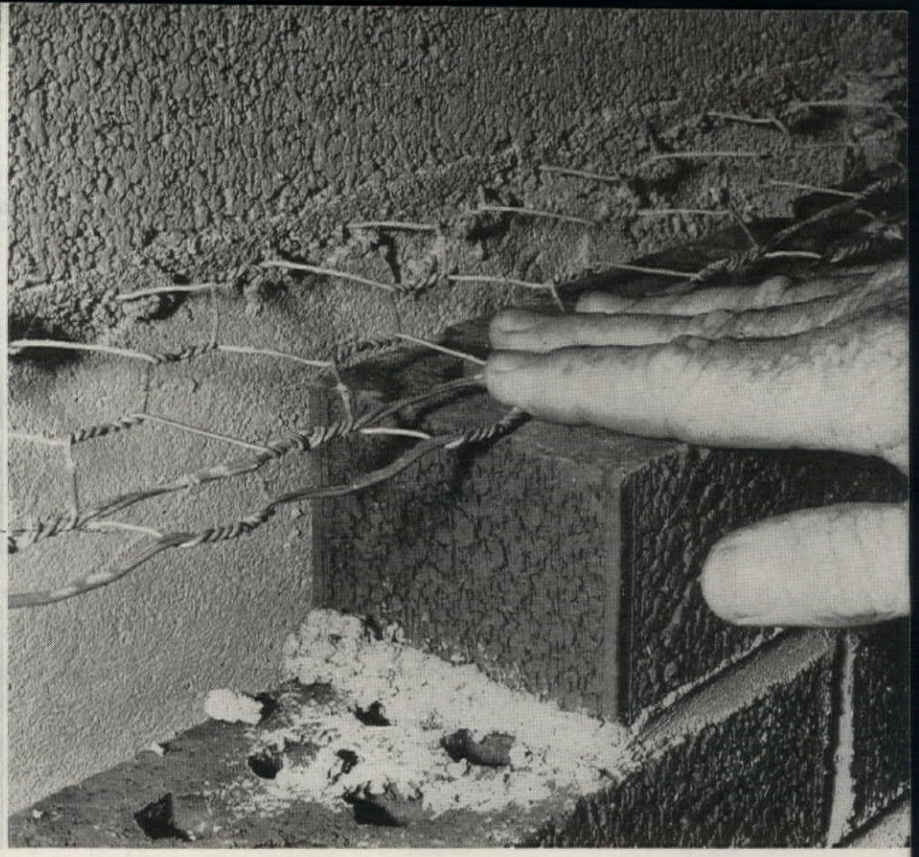
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That's the conclusion of

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Note how readily Keywall adjusts to variation in brick and masonry courses. Here it serves as tie between brick and block.

Joe Alberti, masonry superintendent, Ragnar Benson, Inc., Chicago Engineers-Builders

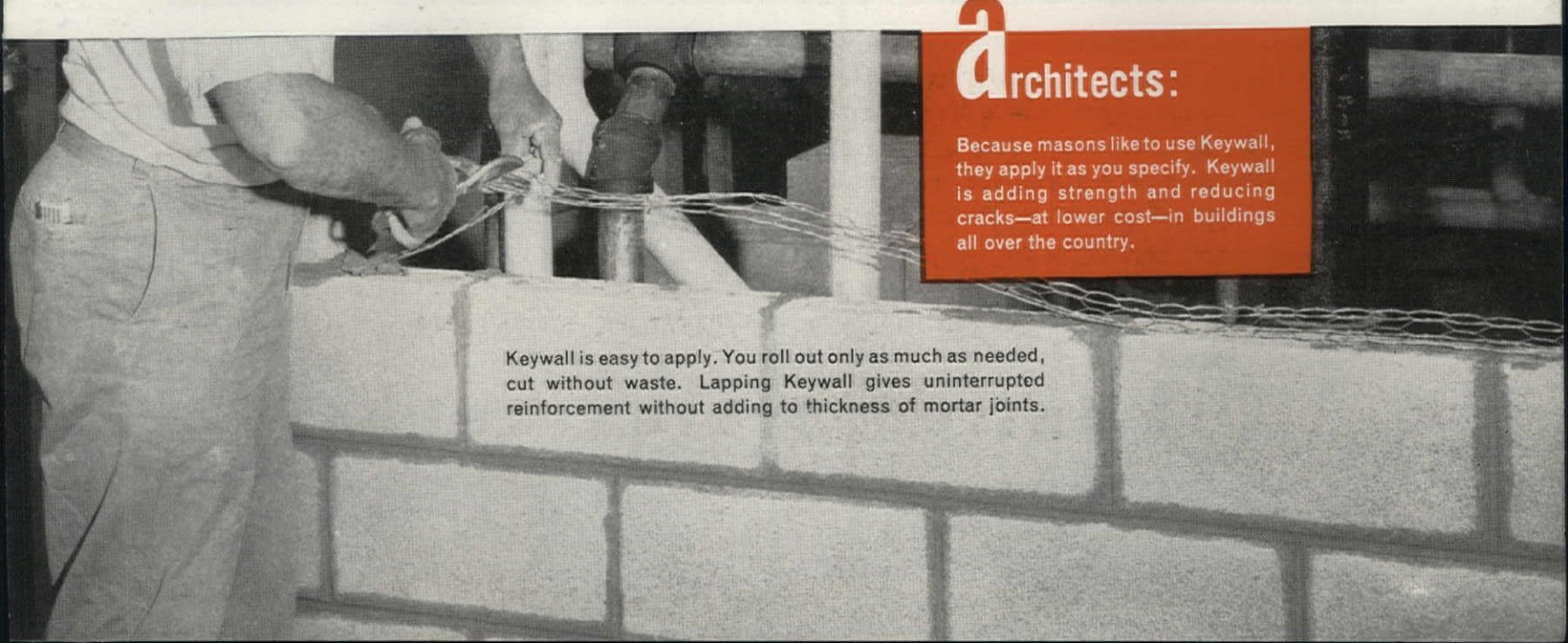
Mr. Alberti, as well as his masons, is enthusiastic about this new joint reinforcement. Ask one, Joe Wittye, for his opinion, "I'd use Keywall in my own home." Then ask Ragnar Benson designers, "We're specifying Keywall wherever masonry reinforcement is needed."

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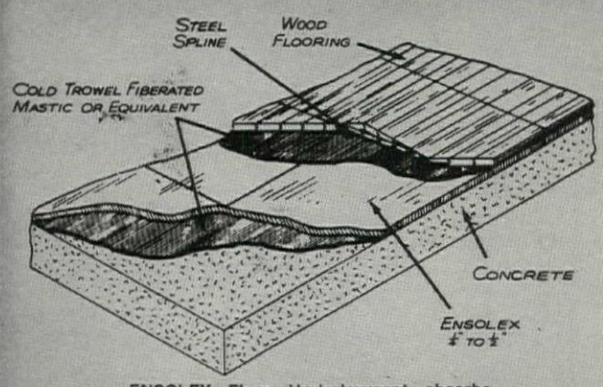
architects:

Because masons like to use Keywall, they apply it as you specify. Keywall is adding strength and reducing cracks—at lower cost—in buildings all over the country.

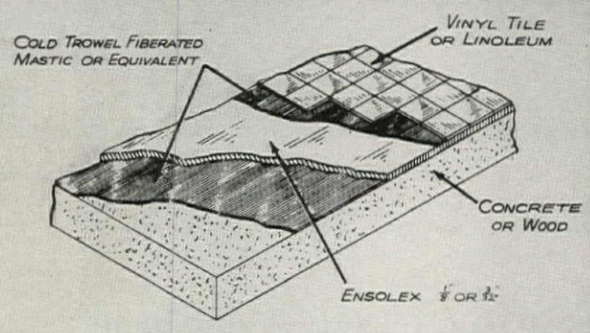
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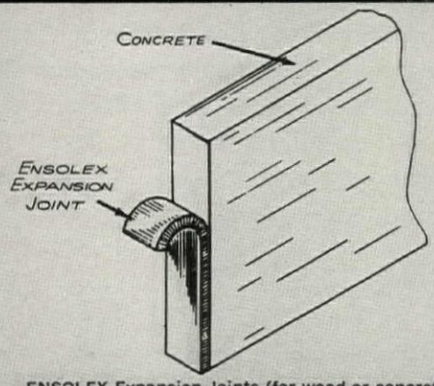
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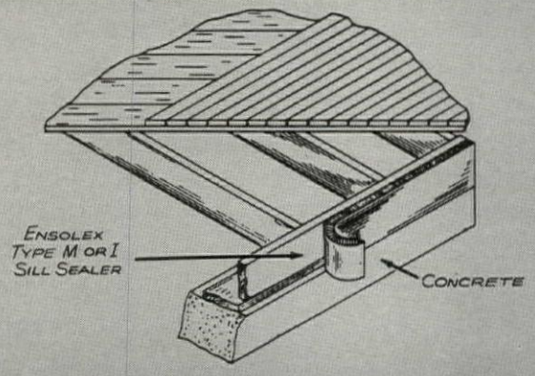
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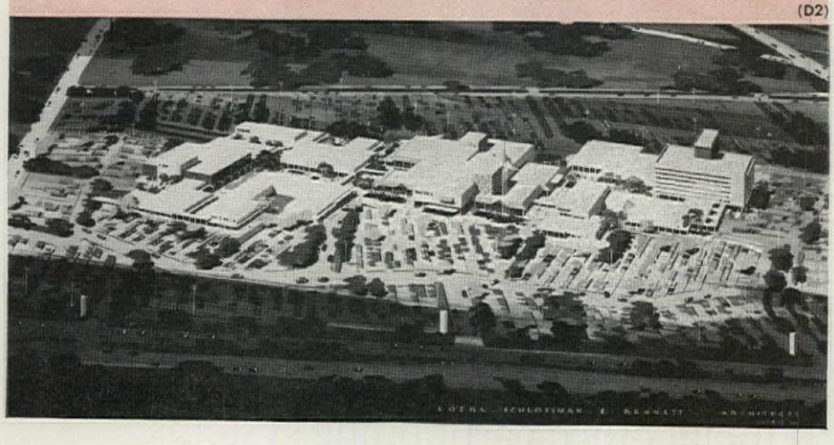




OLD ORCHARD SHOPPING CENTER, Skokie, Ill.

Architects: **LOEBL, SCHLOSSMAN & BENNETT,** Chicago, Ill.
Mechanical Engineer: **ROBERT E. HATTIS, INC.,** Chicago

(D2)



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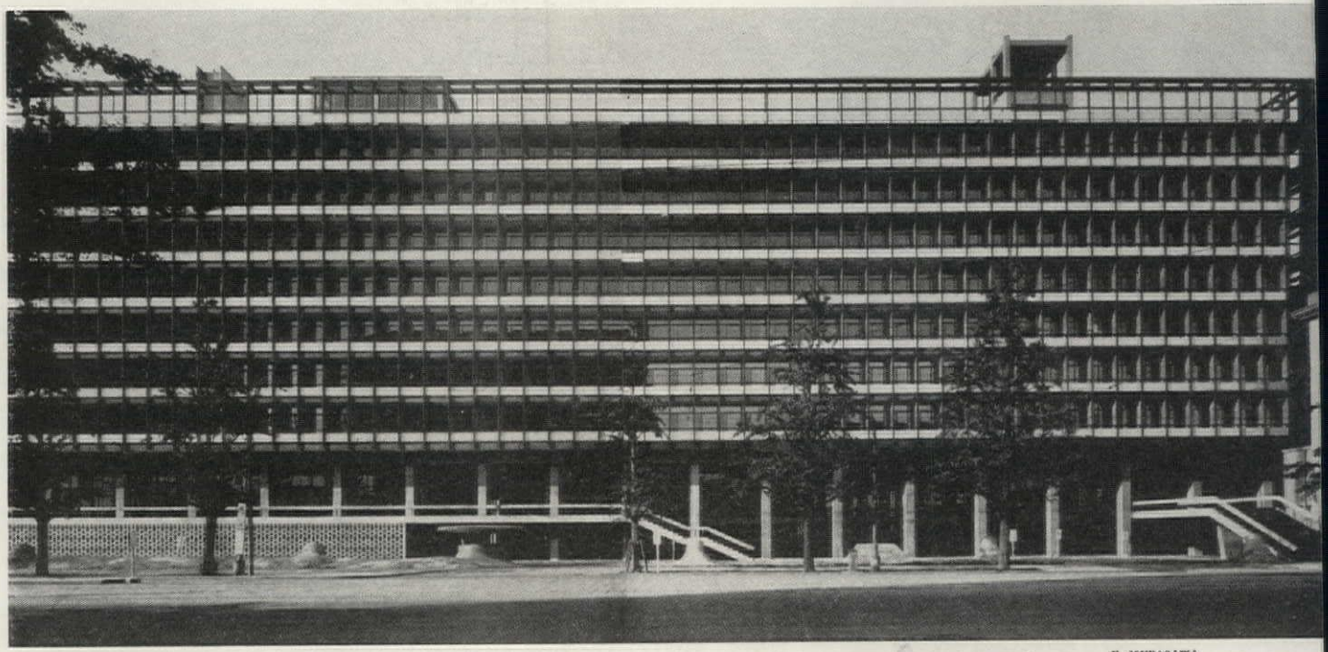
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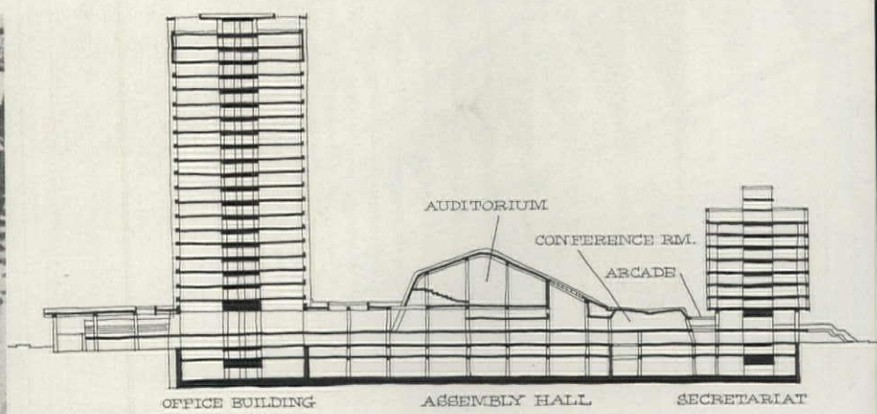


F. MURASAWA

Kenzo Tange has given the Tokyo City Hall's recently completed Secretariat a strong-lined façade.

Eventually, a superblock, with three buildings plus plazas.

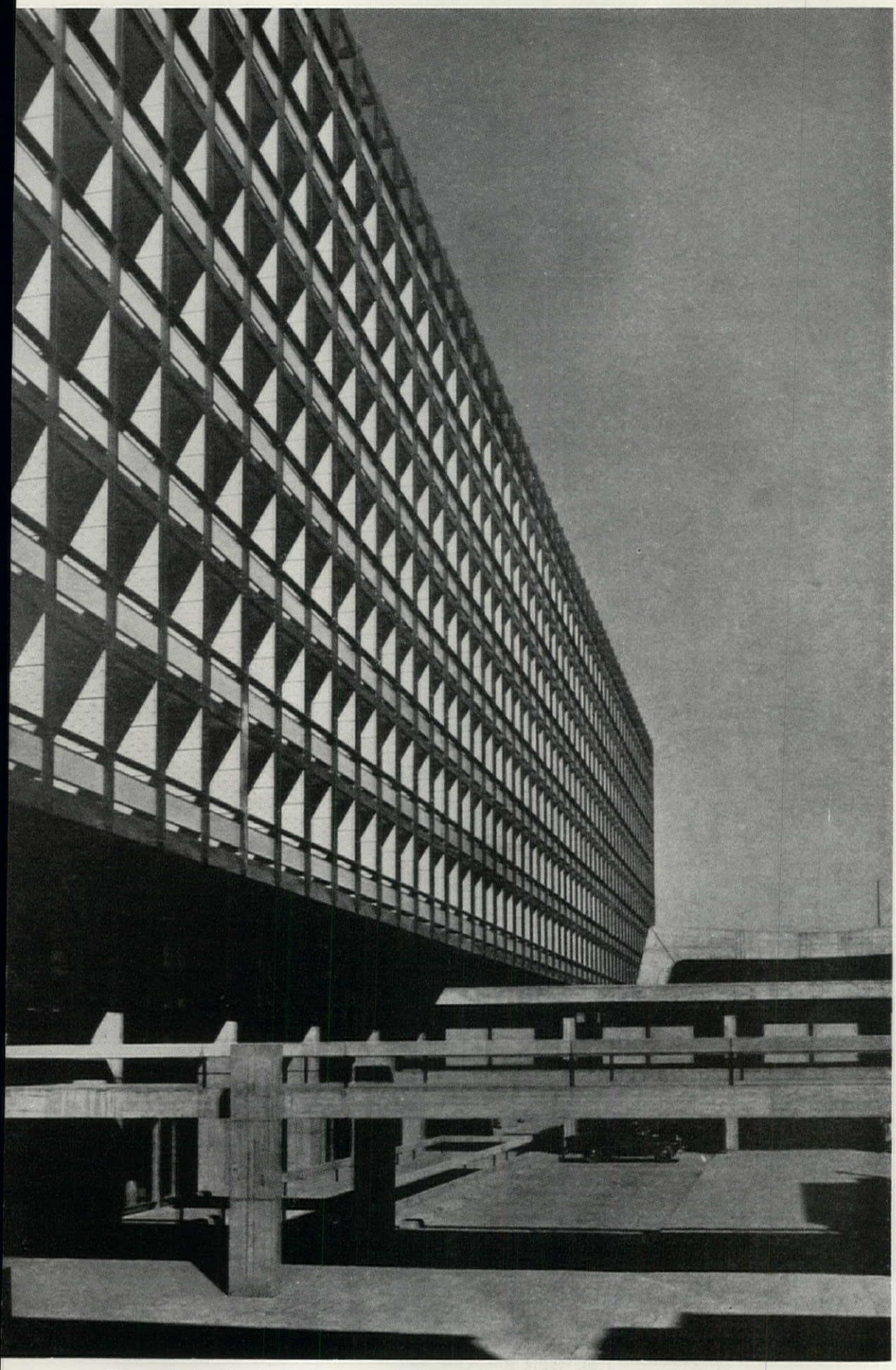




TOKYO'S CONTROVERSIAL CITY HALL

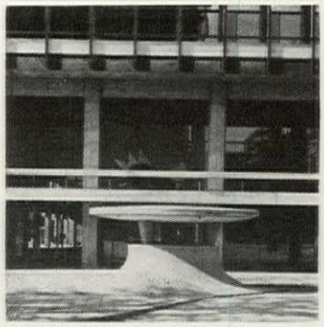
When Tokyo's new Metropolitan City Hall was opened last year, one unwitting visitor walked through a window, spent three months in the hospital. The first city employees to move in were driven out of their offices by mosquitoes spawned in the seepage-prone basement. Conservative critics shook their heads; what else could be expected from a building that lacked a sense of humanity and looked like a combination fishtank and parking garage?

But other observers, particularly those who hope that Japan can maintain an architecture independent of other cultures, think the city hall is just what Tokyo needs. It introduces a design that is formal enough for its official function yet generous enough in plazas and arcades to invite the interest of strollers. And while the design takes advantage of technological and artistic experiments in other parts of the world, it has a decisive character of its own. Credit for this goes to the



PHOTOS COURTESY "KENCHIKU BUNKA"

The south façade. In the background, the arcade and the conference room roof.



A toadstool-like traffic kiosk.

modern Japanese master, Kenzo Tange (architect of such other contemporary Japanese gems as the Hiroshima Memorial).

As the model overleaf shows, the city hall is actually three buildings standing together on a superblock: the already completed Secretariat; the escalator-shaped Assembly Hall (one part of which, the conference room, is now built); and a 20-story tower for administrative offices (not yet started). The superblock will simplify traffic flow by eliminating alleys and short blocks; parking has been put underground.

The basic structure of the Secretariat is clearly revealed in the steel and concrete grid of the south façade (left). The steel floor beams are cantilevered out beyond the window line from interior columns. Vertical concrete panels are set between the beams to establish a strong, modular pattern. The façade looks especially rugged to Western eyes used to buildings that have similar structural systems but that have been slicked up with gleaming curtain walls.

Tokyo's civil servants continue to have trouble with the floor-to-ceiling windows of the Secretariat. Some clerks have tried to recreate the atmosphere of their dingy cubbyholes in former quarters by surrounding themselves with battered furniture and screens. Only the lobby has gained wide popular acceptance; its rich *décor* (teak ceiling, granite paving, mosaic murals) is an accepted symbol of Tokyo high fashion.

As one Japanese put it last month: "The City Hall has at least become an architectural curiosity." END

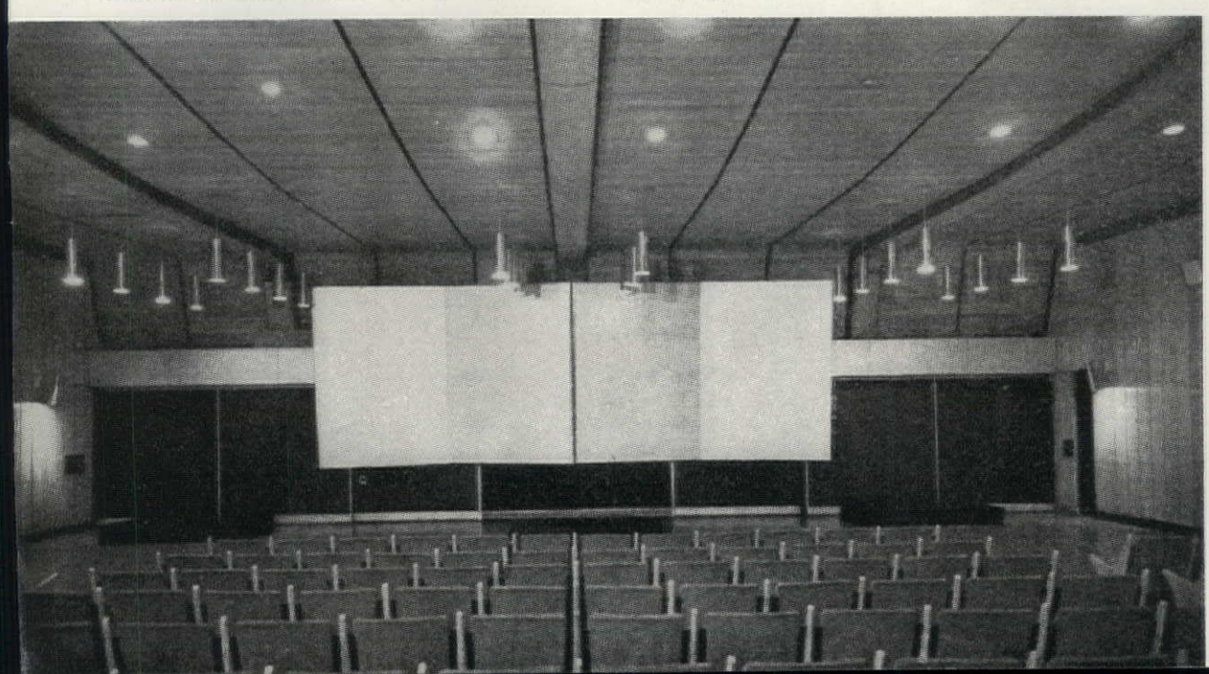


The elegant décor of the secretariat lobby.

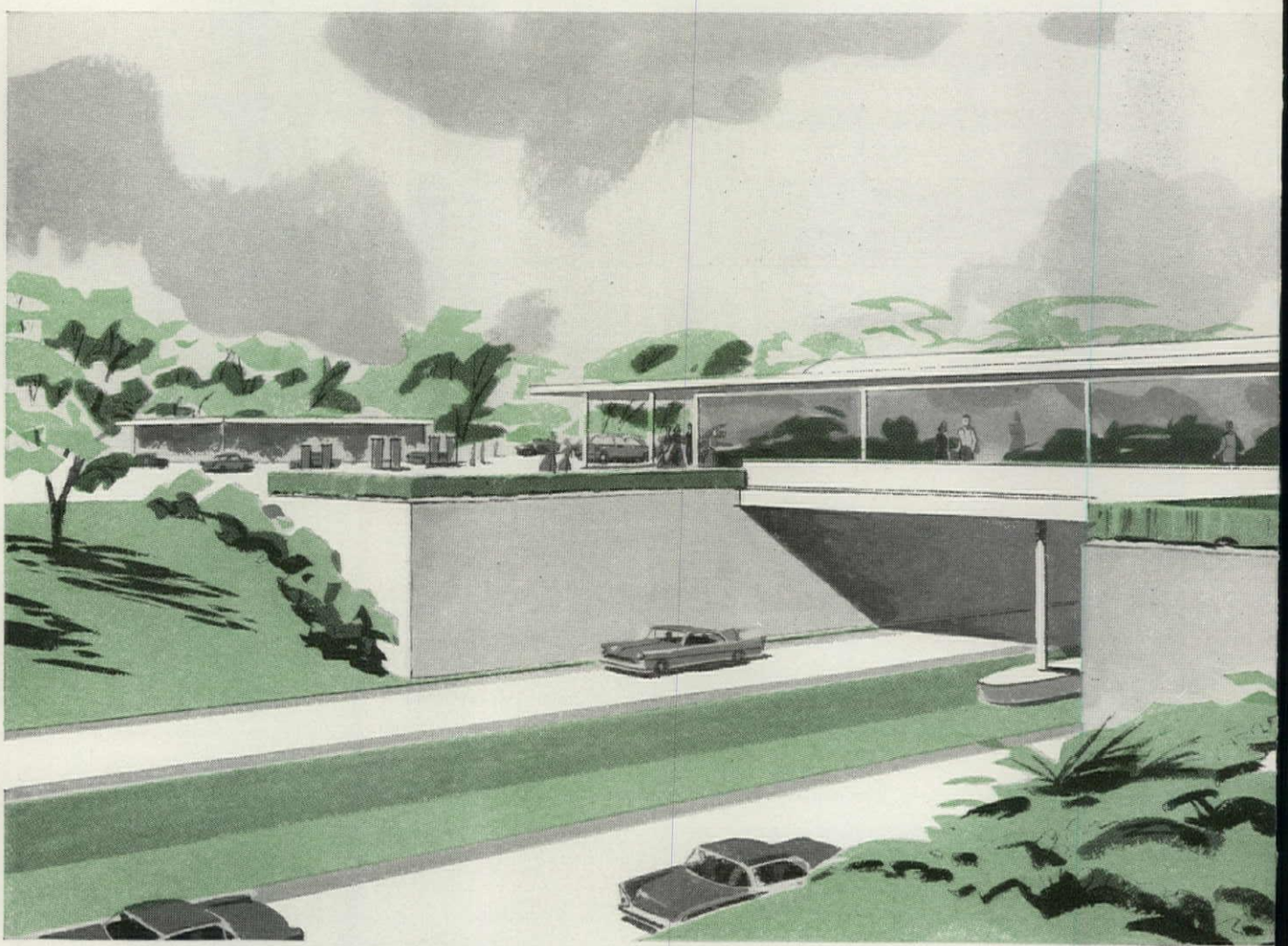


The conference room's sway-backed spaciousness.

Planned for briefing sessions, the conference room is equipped with the latest audiovisual aids.



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